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# HEARINGS

BEFORE THE

U. S. Congress.

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

OF THE

HOUSE OF REPRESENTATIVES

ON

**H. R. 11964,**

PROHIBITING COMMON CARRIERS ENGAGED IN INTERSTATE  
COMMERCE FROM TRANSPORTING GUNPOWDER AND  
OTHER HIGH EXPLOSIVE COMPOUNDS OVER  
THEIR LINES, EXCEPT UNDER CER-  
TAIN CONDITIONS, ETC.

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TRANSPORTATION OF GUNPOWDER AND OTHER HIGH  
EXPLOSIVES.

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HEARINGS BEFORE THE COMMITTEE ON INTERSTATE AND FOREIGN  
COMMERCE, HOUSE OF REPRESENTATIVES, ON THE BILL (H. R. 11964)  
TO PROMOTE THE SAFETY OF EMPLOYEES AND TRAVELERS UPON  
RAILROADS, AND PERSONS LIVING OR DOING BUSINESS IN THE  
VICINITY THEREOF, BY PROHIBITING COMMON CARRIERS ENGAGED  
IN INTERSTATE COMMERCE FROM TRANSPORTING GUNPOWDER  
AND OTHER HIGH EXPLOSIVE COMPOUNDS OVER THEIR LINES,  
EXCEPT UNDER CERTAIN CONDITIONS, ETC.

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WASHINGTON, D. C., *March 18, 1904.*

**STATEMENT OF MR. T. LUDLOW CHRYSTIE, OF NEW YORK,  
REPRESENTING THE MASURITE EXPLOSIVE COMPANY, OF  
TRUMBULL COUNTY, OHIO.**

Mr. CHRYSTIE. Gentlemen, I appear before you in regard to House bill 11964, in reference to the transportation of explosives. My client is a manufacturer of explosives, with a large plant at Masury, Trumbull County, Ohio. This bill has been brought to its attention this week, and only to my attention as counsel of that company since last night.

There are two points we especially desire to be heard on, now or later on.

The first point is that this bill provides that the inspectors to be appointed by this act shall have access to the manufactories at any time, and shall have power to examine the processes of the manufacture of explosives, and shall have power to call upon the manufacturers for the ingredients of explosives.

This is a matter of very vital importance to my client, for the reason that the process is a secret process.

The explosive is a nitrate of ammonia compound, which is a safer compound than nitroglycerin; and my client has hit upon a secret process which makes the explosive a nonhazardous high explosive.

The CHAIRMAN. And has not divulged it?

Mr. CHRYSTIE. No, sir.

The CHAIRMAN. We are sorry that we are pressed for time this morning, and can not accord you as much time for a hearing as we would like. We would be very glad if you would put in writing what you desire to say, and submit it.

#### 4 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

Mr. CHRYSTIE. I <sup>should</sup> like now to make one other point, and that is, this explosive is a safe explosive, and has been demonstrated to be so by various tests.

The CHAIRMAN. And will not explode?

Mr. CHRYSTIE. Only under conditions when you desire to have it explode.

The CHAIRMAN. It will not go off before you get ready?

Mr. CHRYSTIE. That is the point. That we have demonstrated, both by specific tests and by time. We are prepared to demonstrate its safety at any time; and, we think, following the example of other countries, that a gradation of explosives as to hazard should be made, and that a nonhazardous nitrate of ammonia compound should not be put under same restrictions as nitroglycerin compounds.

Mr. RICHARDSON. Does the explosion make any noise?

Mr. CHRYSTIE. It is not noiseless, but it is insensible to cold, heat, or concussion. We claim to have solved the problem in regard to explosives going off prematurely. If there is a further hearing, I wish to be notified.

The CHAIRMAN. We will promise you that if there is a time fixed for a hearing. If the bill should be called up in committee you may be notified.

#### STATEMENT OF MR. JAMES M'CREA, OF PITTSBURG, PA., FIRST VICE-PRESIDENT OF THE PENNSYLVANIA LINES.

Mr. M'CREA. Gentlemen, speaking in behalf of this bill—

The CHAIRMAN. What is the number of it?

Mr. M'CREA. House bill No. 11964. In speaking of this bill I want to say, first, I am interested in it.

Mr. TOWNSEND. The same as the other one?

Mr. M'CREA. Yes. I want to say, in behalf of this bill, that my position as vice-president in charge of the operations of the Pennsylvania lines west of Pittsburg, and also my knowledge of the situation, have very much impressed upon me the necessity for this legislation. Very serious explosions have taken place by which there has been great loss of life and property. The public does not understand to what extent they are living over a powder mine.

Mr. MANN. Will you please tell us, for the record, whom you represent?

Mr. M'CREA. I am the first vice-president of the Pennsylvania lines west of Pittsburg. That covers their interests from Pittsburg to the Mississippi and the Lakes; and I am in charge, in the absence of the president—who is usually absent—on those lines.

Mr. ADAMSON. Then the transportation companies regard this legislation as necessary for their safety?

Mr. M'CREA. Yes; we consider it exceedingly so. I have a memorandum here in which I have made a record of what has taken place in the last twelve or fifteen years of very heavy and very large explosions. They have amounted on the lines I represent to a damage of over \$300,000. They have killed and injured, I suppose, over a hundred people, and the number of narrow escapes that we have—that just do not happen, just do not come off—are enough to be exceedingly alarming to everybody.

I want to say, outside of my connection with the transportation company and simply as a citizen, that the knowledge I have of the

conditions and the dangers to which the public are subjected is such that I do not think I would be doing right if I did not make a strong effort to make known to those who would have the control of that matter what the real condition is. All the legislation that I know of in the State of Pennsylvania in regard to high explosives is merely that they shall not be carried on passenger trains.

Mr. ADAMSON. What safeguards are made by your people under which they can be carried?

Mr. McCREA. This bill which you have before you goes into quite a number of details.

Mr. RICHARDSON. As I understand, this bill is simply to divide up these explosives into different parcels, and instead of carrying them all together they must be carried in different parcels.

Mr. McCREA. The bill provides, first, for the inspection of explosives at the factory. It provides that the United States Government, through the Interstate Commerce Commission, shall establish an inspection at all manufacturing points.

The gentleman who spoke a moment ago referred to the fact that there was a secret process. The inspection which I desire and recommend is not aimed at all as to discovering what the secret process may be. I do not know what that limit would have to come to, but I am asking simply that the inspection must provide, first, that the manufacture is such that it would make it safe to transport.

I shall ask Doctor Dudley, who is here, to give you an explanation later on as to how it happens that simply one bad manufacturer or one manufacturing concern, as against others, makes the transportation of dynamite, as a simple proposition, exceedingly dangerous in one case while in another case it might not be so.

I want that inspection to cover packing, and in the next place to cover loading in the car, and then that such a certificate should be given to the transporter as to indicate to him that up to the time he takes hold of it everything is in condition proper to transport under the law. Then there are regulations in the bill as to how the carrier shall transport it.

In the preparation of this bill I endeavored to go into the matter as fully as I could possibly do with the information I had. After this transportation, there comes a matter that I really think falls within the province of this committee, the storage; and after that should come the redistribution, and then should also come the sale.

I recognize that the instant you talk about the storage and sale you are coming very close on to a question as to what is national, what is State, and what is municipal duty; but I think that the people of the United States have the right to have the same care taken of their lives and property as is done in Germany, France, England, and practically every other civilized country that we know of. The legislation in those countries is quite comprehensive. Take England and Germany, for example. Those are the two I have looked into most minutely. Their legislation is simply amazing. They go into the most minute details. And what is the result? In England, as I understand, with all their transportation of high explosives, they have had but five or six accidents, and those not large ones since 1875. We have had five or six of them within two years. Just think of it.

Mr. MANN. What kind of accidents?

Mr. McCREA. Carloads of dynamite, with 40 tons in them, blowing up into the air.

Mr. ESCH. Have you had any accidents from cartridges used for fowling pieces, or rifle or pistol practice?

Mr. McCREA. No; nothing serious from that.

The railroads themselves have stringent and detailed regulations as to what ought to be done; but the difficulty is, you understand, that if we make them too strict the public is open to the danger of smuggling.

As a matter of fact, take these lines which I represent. I am perfectly safe in saying that for every dollar we have received for handling these high explosives it has cost us more than a dollar in damages, entirely irrespective of the cost of handling.

Mr. RICHARDSON. You gave statistics about the value of property destroyed in so many years and the destruction of lives, did you not?

Mr. McCREA. I said, roughly, sir, that in the last ten years, or about ten years, there have been four or five explosions—not the small ones, but the large ones.

Mr. RICHARDSON. How many lives were lost in those?

Mr. McCREA. About 100 killed and injured, I suppose.

Mr. RICHARDSON. How much property destroyed?

Mr. McCREA. The whole thing cost \$300,000.

Mr. ADAMSON. On the subject of ammunition, this bill excepts ammunition for the use of the United States and for State governments. If there has been no explosion from handling cartridges for sporting and fowling pieces, what harm would there be to adding that to the exception?

Mr. McCREA. The reason I have made the exception to the United States ammunition and that intended for the use of State governments is that I felt that immediately I would be placing a restriction upon something which in time of an emergency might cause trouble; and then in the next place, the United States Government is itself more careful in its inspection, and so forth, than private parties are.

Mr. ADAMSON. These dealers who write us protest that their packages are packed safely by themselves, and they sell to sporting men.

Mr. McCREA. I think under these regulations there is nothing serious about that. That is not the case I am after. It is after the large package.

What is intended in this bill is this: That the United States Government should appoint a general inspector of explosives all over this country, and that the United States Interstate Commerce Commission should be authorized to do it. There has been suggested to me what would seem to be a very wise amendment, and that is that the chief inspector should be a United States army or naval officer, because men who understand this kind of work are difficult to get. Then, under the chief inspector there should be a number of subinspectors, and it should be provided that no package could be shipped out of a factory and no car moved away from the station unless that inspector has said first that, from the standpoint of transportation, the explosive is safely manufactured and that it is safely packed, and that it has been properly loaded.

Now, that car is shipped from the manufacturing point. It may be a carload of 40 tons, for example. It is shipped from the manufacturing center to the distributing center. Every package that goes

out of the factory should bear a stamp on it. It should have a United States stamp on it, so that when it is taken from the place where it has been stored and brought to the station again for redistribution it can be identified. In other words, when it is being retailed from the storage point with a stamp on it it will show that it has been properly manufactured and packed originally.

Let me give you just an illustration of what I mean, citing a case of manufacture. It will be very brief—or perhaps I had better ask Doctor Dudley to do it, as he can do it better. If you will think of the enormous amounts of explosives that are shipped around through this country in cars, which cars pass right directly through the cities, you will see what a terrible danger there is in this business. If an explosion in such a case were to take place, you could not measure the catastrophe. It would really be only in proportion to the amount of explosives in the cars.

Mr. TOWNSEND. Is it not true that many of these explosives are shipped in mixed trains, where passenger cars are mixed with freight cars or express cars?

Mr. McCREA. No, sir; not with passenger cars. There are no laws that force us to carry them, and several roads in the country have absolutely refused to transport explosives.

If I should consult my own wishes on the subject, I would never let a pound of it be moved, or move a pound of it at any price that was offered. But it is an absolute necessity, in the conduct of the business of the country, that the movement of explosives should be free and frequent.

The CHAIRMAN. Could you give us some idea of the amount of explosives handled by your company, for instance, approximately?

Mr. McCREA. Not offhand; but I would be very glad to furnish it to you, and I would be very glad to prepare those statistics if you would like to have them. I think we can get at them—that is, we can get at the original shipments very readily. There are a large number of small packages shipped from cities out among the small dealers, and so on; but we could tell you how much we would take away from the manufacturers that are along our lines.

The CHAIRMAN. How many manufacturers are there that you deal with on large account?

Mr. McCREA. Oh, east and west of Pittsburg I should say there were fifteen or twenty.

Dr. C. B. DUDLEY, of Altoona, Pa. There are thirty or forty in the United States, but I think your estimate of eighteen or twenty for our own line is very good.

Mr. McCREA. That brings up one of the questions as to the functions of the National Government and of State and municipal governments. To-day the Pennsylvania Railroad may place at these manufacturing points an inspector, and we have a right to do it, as we are not forced to carry the product. With that inspector there, we are able to make any manufacturers come to time and show that they have complied with all the conditions that are necessary. But nothing that we can do will govern all the other railroads of the country. There may be a factory within 100 miles of our road, whose products come to us by another connecting line for transportation, where no restrictions whatever

exist—where the railroad can not afford it or does not require the restrictions, or from some other cause. A car containing such product reaches us at the junction point—

Mr. ADAMSON. Have you not the same power that you have to refuse to take a shipment?

Mr. McCREA. Yes; but it is of small value. Inspection after a car is loaded can not be thorough. It must be done at time of loading.

Mr. TOWNSEND. It is an unprofitable business for them, is it not, that costs them more than they receive?

Mr. McCREA. Yes. I do not know that others are as careful as we have been.

Mr. RICHARDSON. You recognize the necessity of the goods through-out the country?

Mr. McCREA. Yes. Not only that, but that if they were refused absolutely they would be smuggled. They would be shipped under false names.

Mr. RICHARDSON. The cost of transportation is not affected at all by it?

Mr. STEVENS. Preparing it for transportation would cost more?

Mr. McCREA. Yes; and the inspection by the United States Government would be an expensive proposition. My bill suggests that that be covered by the United States furnishing these labels or stamps at certain prices, which could in turn pay for the cost of these inspections.

Mr. ADAMSON. Then you would be willing to be required to accept for shipment any package with that stamp on it?

Mr. McCREA. Yes; we would rather be required to do it, you know, than live under the present conditions.

Mr. LOVERING. Would the passage of this bill have the effect of absorbing or relieving the road from any liability which it is now under?

Mr. McCREA. I should think not.

Mr. ADAMSON. I see how it would relieve you from embarrassment, both with the shippers and the connecting railroads.

Mr. McCREA. I would like to say this, if you will allow me: That outside of the railroad officials—and I am really speaking more as a citizen than I am as a railroad officer, being in a position as a railroad officer, however, perhaps is the excuse for doing it—but when I know what you and I, and my family and your family, are undergoing in the way of risks, when you know what those risks are, I do not think it is fair that they should exist, and I want to see this matter regulated, and I want to know that my family and yours are running no more risks than are necessary. Outside of that, the people who run the most risks—most of the risks, nine-tenths of the risks—are the railroad employees and trainmen whose duty requires them to handle this material; and I think every provision should be made for their safety.

I go further, and I am perfectly willing to say this to you, that the bill that is prepared here is to a certain extent crude. It has been prepared without the ability to get the necessary knowledge on a subject as big as this is. I think this committee would be in a position to call for the testimony of any manufacturer or chemist that they want. I can not do that. I can not make them come up and tell me what they want, or what they should do, or get their views on the subject. I believe if you were to investigate this subject, and get

interested in it, as I am, and interested for the reasons that I am, you would expand this bill, and make your restrictions much more severe.

Mr. BURKE. Do I understand you to say, Mr. McCrea, that you framed this bill?

Mr. McCREA. Yes, sir. I realize one other proposition, and that is, we are possibly getting on very tender ground when we talk about the regulation of storage and the sale of explosives. But do you know that to-day there is not a city in this country where your boy, or an anarchist, or anybody that chooses to, can not go into a store and buy a stick of dynamite just as readily as he can buy a stick of candy?

Doctor DUDLEY. Except in New York, where they have recently covered that situation very completely; but I do not know that it is covered anywhere else.

Mr. McCREA. It is not infrequent for you to pick up a paper and see that a saloon has been dynamited, or John Smith's house has been dynamited because he was a Baptist when he ought to have been a Methodist, or something of that sort.

Mr. BURKE. Is it true there is no legislation now governing the shipment of high explosives?

Mr. McCREA. None that I know of.

Mr. BURKE. Is there no State legislation?

Mr. McCREA. None that I know of.

Mr. BURKE. And it is regulated only by such rules as the railroad companies have seen fit to make for their own security?

Mr. McCREA. We have done the best we could with it.

Mr. BURKE. If you desired, you could have trains, half passenger and half freight, and the freight cars loaded with dynamite, if you wanted?

Mr. McCREA. No; not in Pennsylvania. The only law I know of is the law of Pennsylvania, which says it shall not be carried on passenger trains.

Mr. RICHARDSON. Why is it that there has not been more general legislation in the United States on this subject—for instance, to prevent the sale of a stick of dynamite? Give us your reasons why you think the States have not acted on such a dangerous matter. It perilously approaches that great question of putting a trammel upon the freedom of individual action. Perhaps that is it?

Mr. McCREA. I was going to answer your question by saying that, frankly, I do not know why it is unless it is politics, or perhaps it has been the pressure of manufacturers, or perhaps it is the fear of raising the question which you suggest. Doctor Dudley tells me what I did not know—that in New York City they have taken hold of it and probably largely provided against it from that standpoint.

The original legislation in England governing explosives was started with a view to controlling it at the time of the Fenian outrages, when bombs and dynamite were used. They started then to control it. It was started originally, not from the standpoint of making safe the transportation of it, but to prevent its use for illegal purposes.

Mr. RICHARDSON. I did not mean to indicate that there is a parallel, or that the same principle applies to the law forbidding the sale of a stick of dynamite in a State and the proposition you make. But the other question is a serious one.

Mr. McCREA. I did not touch that in this bill.

Mr. RICHARDSON. I see you did not. There is a great difference.



You merely give your views about it. You know we have assassinations, and everything else.

Mr. McCREA. If you will allow me, I have not had very much political experience, but, knowing as much as I do about this matter and seeing what I have seen about it, if I were an individual on this committee I would work very hard to have the whole proposition looked into, even if I did tread dangerously on municipal and State rights. You know Congress is doing a great many things in connection with transportation that are wise, and I am glad that they have done them, and in most cases I have advocated them; but all the same, if you would get down to the strictest kind of old states-rights doctrine, Congress had not any right to do what has been done; but it was nevertheless right and proper, and I am glad that it has been done, and I would like to see Congress make another effort in the line of regulating the manufacture, transportation, storage, and sale of explosives.

Mr. RICHARDSON. What is that you state about the old states-rights doctrine?

Mr. McCREA. I will withdraw it. [Laughter.]

Mr. RICHARDSON. We will eliminate that from the record.

Mr. McCREA. I hope all I say will not be taken down.

Mr. ADAMSON. That doctrine is very popular up North with anybody whose interest it is to invoke it.

Mr. McCREA. I want to apologize for this bill, and say it is not as complete as it ought to be. And the only reason is that I did not know how to make it better, and I did not have the facilities for getting at the details as I should have had. It has only been recently that I have been able to get translations of the German laws. In Germany if a large shipment is to be made from one point to another a man has to be sent with the shipment.

I want to be frank, and I think it is safe to say that probably 75 per cent of the accidents that have happened and of the explosions that have taken place have been the fault of the transporters because their servants did not do as they were told to do or because the regulations were so binding and stringent that they could not be made to work in with the other business. But traffic is now flowing in such large bodies that it is a great deal like flood water in a river. You can not row a boat and steer it clear of every obstacle as easily in time of flood as you can when the water is low, the current sluggish, and the channel free from obstructions. I do not care whether it is dynamite or pig iron or cotton, everything has to be made so that it will stand the chances of the ordinary rough usage which it is bound to receive at some time in the course of its movement.

Mr. ADAMSON. You heard our young friend from New York suggesting that they had a formula by which they manufacture a safe combustible?

Mr. McCREA. Yes, sir.

Mr. ADAMSON. I want to ask you if your plan of inspection, after providing for safety, would not give to him all the benefit he claims?

Mr. McCREA. Yes; I think so; it is for the inspector to say. I tried very carefully to avoid being inquisitorial. I do not want to know what is the composition of explosives, only I insist that the Government should know enough to say whether it is safe to transport.

Mr. ADAMSON. He could satisfy the inspector, so that it would be covered by the inspector's stamp?

Mr. McCREA. Yes; all I am asking is to secure its regulation and to see that the goods manufactured are safe for transportation and for the kind of transportation they are bound to get.

The CHAIRMAN. Would there be any objection, or would it seriously harm the harmony of this bill, if we were to exclude from its operation all of that which comes under the definition of ammunition that you have here, commencing on line 21, on page 2? There you find the definition of the word "ammunition." It covers cartridges used by sporting men, and fuses, and matters of that kind. Now, suppose you were to add to that section a proviso like this: "*Provided*, That explosives that fall under the term 'ammunition' shall be excluded from the operation of this act." Would that mar the general purposes of the bill? I suppose every member of this committee has had communications and correspondence about this subject. I have had a dozen telegrams, I think, protesting against interfering with the right to transport this character of explosive—cartridges used in sporting, or fowling pieces, or rifle or pistol practice.

Mr. McCREA. I think that could be excluded. It certainly could be, I should say, from line 21 to 24.

Mr. STEVENS. On page 5, paragraph b—how much does that paragraph change the method of transportation from that which is now used ordinarily or that which you now compel?

Mr. McCREA. None of these really make any changes. These are practically copied from our regulations as they exist now.

Mr. STEVENS. It would not make any difference?

Mr. McCREA. No, sir; I think not.

Mr. RICHARDSON. You could take the bill, as the chairman suggests, and readily eliminate the things he suggests? It is your bill, and you know what is in it?

Mr. McCREA. As far as I am concerned, I do not want to eliminate from this bill. I would like to add to it.

Mr. RICHARDSON. The elimination of the matter from lines 21 to 24 possibly might affect something else in the bill?

Mr. McCREA. If you will allow me, I would like to have Doctor Dudley, the chemist of the Pennsylvania Railroad, speak to you.

The CHAIRMAN. This committee has no power—in fact, it is prohibited from sitting during the sessions of the House; and we are violating that rule in order to hear you in this matter.

Mr. McCREA. I was only going to ask you that you allow the Doctor to answer the question that was asked me in regard to the provision on page 5 as to packing.

The CHAIRMAN. Perhaps the committee at a later time would like to hear him.

Mr. STEVENS. I think we ought to if we take up this subject.

Mr. McCREA. The Doctor will be very glad to stay if you think you will fix another time.

Doctor DUDLEY. I am quite at the control of the committee, and any time you want me I will be here.

The CHAIRMAN. Will it suit you to be here to-morrow?

Doctor DUDLEY. Yes, sir.

The CHAIRMAN. Then we will say that at 12 o'clock to-morrow we will take up your branch of the matter.

Thereupon, at 12:35 o'clock p. m., the committee took a recess until 10:30 a. m. to-morrow, March 19, 1904.

MARCH 19, 1904, p. m.

**STATEMENT OF DR. CHARLES B. DUDLEY, CHEMIST, OF THE  
PENNSYLVANIA RAILROAD COMPANY, ALTOONA, PA.**

Doctor DUDLEY. Mr. Chairman and gentlemen of the committee, this bill (H. R. 11964) concerns the safe transportation of explosives. As we understand the matter, the safe transportation of explosives depends on two parties, first, the maker of the explosive, and, second, the parties who actually handle it in transportation. This bill concerns only the makers. Now, in order that you may understand the situation, I may say, at present, as we understand the matter, there is very little legislation on the subject of handling of explosives or their manufacture. The only law with which any of us are conversant in Pennsylvania is the single law in the statutes of Pennsylvania, that explosives shall not be carried on passenger trains, but a control of the subject in any shape or form by legislation is at present, as we understand the matter, not in legislation.

Now, in order that you may understand what is involved in this bill, let me give a few explanations leading up to it. These explanations consist in trying to show why it is necessary to have something done to control the manufacture and packing. We are speaking especially of what is known as high explosives, which are principally, in this country at least, and abroad practically, nitroglycerin compounds, so I will take a nitroglycerin compound as my type for explanation. Nitroglycerin, as you doubtless know, is made by having a bath of mixed sulphuric and nitric acid as strong as it is possible to get, and then adding in a small stream the common glycerin. As the material goes in the nitric acid of the bath it combines chemically with the glycerin, forming a new compound—nitroglycerin—the sulphuric acid acting as a concentrator, to keep the nitric acid concentrated, so that it will form the reaction.

The reaction is connected with the development of considerable heat, and the man who does this work keeps his eye on the thermometer most of the time, so as to see that he does not get too high a temperature, for nitroglycerin itself will explode by heat alone when it reaches a temperature of about 325° F., which is simply due to heat alone. Take a little in a dish and heat it up to that temperature and away she goes, and that is the explanation of so many accidents that take place in thawing out nitroglycerin. Nitroglycerin freezes at a temperature of about 50° F., and in a frozen condition is not efficient as an explosive, consequently the constant disposition is to thaw it out. If you set it near a stove, as many ignorant miners do, it reaches a temperature at which the decomposition takes place. Now, during manufacture the material is artificially cooled by cold water or ice, either way, usually around the outside of the vessel or with pipes running through it to keep the temperature down. That is not material for our purpose.

The point I am trying to make to you now is to explain to you why, from a transportation standpoint, it is essential to have some control over the manufacture. I think you will see my point as I go on. The charge being completed, usually about a thousand pounds being made at once, the acid is drawn off. The nitroglycerin does not dissolve

in the acids, but settles to the bottom, being heavier, so that a portion is recovered for further use. The balance of that nitroglycerin goes into the bath of water, the process being now, just as soon as convenient and possible, to remove all the acid that there is there left; that is to say, we want now to get the nitroglycerin absolutely free from acid, so that it is washed in water two or three times, then washed in soda water, so as to have the soda neutralize any acid there may be, and finally the soda is washed away again as the final washing.

Now, the object of all this is, namely, that acid nitroglycerin is exceedingly sensitive. It has been proven by careful experiments and numerous accidents that if acid is left in contact with nitroglycerin it becomes infinitely more sensitive than in the ordinary condition. Ordinarily nitroglycerin is merely yellowish in color; acid nitroglycerin is greenish in color, but so sensitive does it become that if you had a bottle with nitroglycerin in it with which acid had been in contact for a period of time, and would put a glass rod in that and get a drop on it, and take it there and let it drop on the floor it is claimed just simply the shock of dropping on the floor would be sufficient to explode this acid nitroglycerin. We insist on this point so much because the proper neutralization is recognized throughout the world as one of the essential features in the safe transportation of the explosive. If the material is not properly neutralized, the material is much more liable to explosion from shock than if it was properly neutralized and the material is much more hazardous to transport.

Mr. MANN. Do you mean by that that the acid has not been washed?

Doctor DUDLEY. Has not been completely washed out. You are just right, if there is any of the acid that does not enter into the combination. Understand me, that the acid that enters into the combination is all right, that takes care of itself; but any that is left over and above that is not washed, if there is any left, the nitroglycerin becomes much more sensitive. To such an extent is this believed to be an important element in the manufacture that the best manufacturers use, as I will explain to you in a moment, a material that is known as an antacid now—an absorbing material.

Now, let me say that glycerin having been made, no attempt is made to transport it in the liquid form. For many years no attempt has been made to transport nitroglycerin in the liquid form except for the single purpose of torpedoing oil wells. The torpedoing of oil wells is generally done with the liquid nitroglycerin in tin cans, and during Mr. Mowbray's life, when the Hoosac tunnel was being built, the nitroglycerin was used there, and was made right on the ground, the reason for that being that the rock of the Hoosac tunnel was so awfully hard that the ordinary nitroglycerin powder, which I am going to explain to you in a moment, would not tear it to pieces. But nowhere, as I know of, is anything like nitroglycerin carried in the liquid form. It is carried absorbed in other materials. Now, the absorbent is usually wood pulp. For many years it was sawdust, but it has been found that wood can be ground in a beryl millstone and made a valuable and efficient absorbent for nitroglycerin.

Unfortunately the grinding of the wood can not take place with the seasoned wood, because if you do that the mills take fire; so the wood has to be ground green. That gives you a damp absorbent—a damp wood pulp. You will see the force of this in a moment. In addition to wood pulp the absorbent contains almost always nitrate of soda.

The nitrate of soda is used to furnish oxygen to the wood pulp. Any explosive is best which gives the greatest volume of gas per cubic inch of the material; so the wood pulp would be an inert substance, you see, since the nitroglycerin does not have enough oxygen to combine with the wood. So nitrate of soda, which is rich in oxygen, is added to the wood pulp as part of the absorbent. Other things are sometimes put in—sulphur, and sometimes charcoal—but for our purpose it is not necessary to go into those details.

Now, the powder is rated in this way: If it contains 25 pounds of nitroglycerin and 75 of absorbent, that would be a 25 per cent powder; if it was 40 and 60, it would be 40; if 50 and 60, it would be 50; if 60 and 40, it would be 60 per cent. The highest explosive I know of now is 65 per cent nitroglycerin and 35 per cent absorbent.

Now let me come back to the neutralization. The fear of the presence of acid left by chance or by failure to completely wash is so great that in the best factories, not universally, I am sorry to say, but in the best factories, a material such as carbonate of lime, carbonate of magnesia, white-zinc, or something that will combine with acid when it touches it is added to the extent of from 1 to 2½ per cent of the absorbent. Now, the reason why it is not usually added by every manufacturer is, we think, being an inert substance it deteriorates a little bit the strength of the powder. But the very best manufacturers do use an antacid so as to have a little material there in the absorbent.

I may say for your information that ordinary nitroglycerin looks like brown sugar, has a kind of a damp feeling, a very innocent look; you can see the fiber of the wood pulp, and then it is sticky from the nitroglycerin sometimes; and sometimes, if you squeeze it up in your hand, it will fall apart. The best factories, as I say, use an antacid always. Many of them do not. Now, the nitroglycerin having been made and the absorbent prepared, the two are mixed in the proportions, thoroughly stirred up together either with wooden hose in a great big wooden basin 8 or 10 feet in diameter or there are certain mechanical means that are used—wooden paddles revolving around one another slowly to get an intimate mixture. The material is then taken, after it is combined in this way, the absorbent and nitroglycerin, and put into cartridges. It is never transported in bulk, so far as I know—that is to say, I have never seen a box with fifty pounds of nitroglycerin shoveled into it and cover put on. It always made up in cartridges. The envelope of the cartridge is manila paper soaked in paraffin. The cartridges may be an inch, according to the orders, an inch and a quarter, an inch and a half, or 7 or 8 or 9 or 10 inches long, according to the demands of the trade. Then the cartridges are filled by closing the lower end, just folding over, and putting the powder in and ramming it down with a stick (a perfectly harmless operation) until the funnel above, containing the mass of material, is empty. Little girls or boys, as the case may be, do most of this work, ram it down with a stick, and when the cartridge is full the ends are folded over and it is laid aside to be packed in boxes.

Let me stop here long enough to show what I mean when I state that the wood pulp contains moisture. One thing that we fear more than almost anything else in the manufacture of nitroglycerin, and one thing that we fear in its transportation, is leakage from the cartridges. Why? Because if the nitroglycerin oozes out from this absorbent material, wets the box, if you choose, as has been known to

be the case, and gets on to a nail in the box or perchance a nail in the car floor, and there comes the shock of transportation, we get a concussion between those iron surfaces which may cause the nitroglycerin to explode. I do not know whether you have seen experiments of this kind. You take a little bit of nitroglycerin and lay it on an anvil and strike it with a hammer and it explodes. It explodes by concussion. I have done it many times myself. You take liquid nitroglycerin and lay it down on an anvil and strike it with a hammer and you get an explosion wherever the hammer hits. But the nitroglycerin that is absorbed in the wood pulp—that is, the powder (we will call it powder)—if laid on an anvil, it is rarely you will explode it the first time you strike it. I have been able to strike it hard enough to explode it, but usually the first blow packs it down solid and the second blow explodes it.

Now, what I want to give you now is this: Leaky cartridges are our great fear. Now, let us think what we have got in our manila paper envelope. About 15 per cent of the weight of the wood pulp is water. We have got nitrate of soda to a certain extent, varying somewhat with the nature of the explosive. Nitrate of soda is what is known as a deliquescent substance. If I would take a gram of nitrate of soda, which looks much like common salt, and lay it down here, and it happened to be a pretty damp day, in the course of a number of hours you would find your gram had disappeared, and in place of it was a little drop of water. There are certain substances in nature which take moisture from the air and liquefy it. We call these deliquescent substances. Nitrate of soda is one of those substances, and that is the reason why the best gunpowder is not made with nitrate of soda but with nitrate of potash, which is not so deliquescent.

Much of the black powder for Government use is made of nitrate of potash which costs four or five times as much, simply because the nitrate of potash is not deliquescent. But we have shut up in our cartridge 15 per cent of the weight of the wood pulp in the form of water, which is the natural juice of the wood. Moist wood pulp does not absorb nitroglycerin as well as dry wood pulp. The way the material is manufactured does have an extremely important influence upon the safety of transportation. Now, let us go one step further. There is a question among those who have studied the subject most as to whether we ever ought to attempt to carry 75 per cent of nitroglycerin. Originally, 75 per cent material was only made by using infusorial earth, or, what is commonly known as trefolia, as absorbent. Later the wood pulp has been used as absorbent. The absorbent power of wood pulp with nitrate of soda is not as great as infusorial earth, and we are now and have been carrying for some time, 75 per cent nitroglycerin powder made with wood pulp. The question has been raised, and we are experimenting on the subject, as to whether we will not absolutely refuse to carry so high an explosive as 75 per cent nitroglycerin unless it is made by absorbing infusorial earth.

I should say that the packing of the explosives in the boxes is a very important element—the packing of cartridges is a very important element in its safe transportation. I think you will see why, from just this little sketch here. This [showing pencil sketch] represents a box, and these marks that are horizontal (vertical to you) represent cartridges that are laid in a box. They reach not far enough over in that box to fill it, and accordingly two layers are laid the other way in the

box. I trust it is intelligible to you. Now, let us see. We have got a cartridge, which we will assume to be something like this [indicating]. Now, our requirements in regard to the transportation of explosives provide in the most stringent manner that no box of explosives shall be put in a car where the cartridges shall lay in any other position than flat. One reason is, if the cartridge stands in that direction, you can see that the constant jarring of the car, the liquefaction of the nitrate of soda or nitroglycerin is jarred down to the bottom and oozes out; and, as I have already explained to you, leaky packages are our dread.

Now, unfortunately, the manufacturers, without possibly paying sufficient attention to the matter, have been putting those cartridges in their boxes in such a way that, as you will see, when the box lies perfectly flat, top side up, the cartridges do lie flat; but one of the other regulations is that after the powder is loaded in the car it must be so stayed that it will not shift during the ordinary shocks of transportation. It has been found by the loaders, by the manufacturers who frequently load this material themselves by permission, that when they get to the corners and sidewise in the car they turn the box up on the side; but that brings all those cartridges on the end. Sometimes they turn a box up endwise, and that turns all these cartridges on end. We have already taken pains to try to have the manufacturers to change the practice and make it only one position in which the cartridges can be placed on end. That can be done very readily. If we should put the cartridges all in one direction, right across in this direction [indicating], then it could turn on its side and its bottom and still not have any cartridges on end. It could not get on end, as you see, if the cartridges run lengthwise of the box, which would be a simple change we have already suggested to some of the manufacturers.

Mr. ESCH. In that way it would be safe in all positions, and in the safe in two?

Doctor DUDLEY. You are right. The manufacturers are charged so much gross weight. The original box in which this traffic started out in about 1883 was made out of five-eighths or three-fourths inch thick material. But it takes only a moment to think that five-eighths inch material box will weigh considerably more than one of thinner walls, and under the stimulus of competition, as we say, letting them down as easy as we can, the manufacturers have been thinning the walls until actually we are asked now to carry this material in boxes that are not over a quarter of an inch thick. Now, when we come to get the end of one box against the side of another, the shocks of transportation, which are sometimes necessarily sufficient to cause the whole to shift a little in a car, the jam of an end against the thin side breaks the box open and your powder escapes. Some powder gets in between the nails, is hammered further by sudden shocks of transportation, and ultimately we get an explosion. Now, all these points I am trying to make here to show you that there is an absolutely intimate relation between the methods of manufacturers and the practices of manufacturers, and the safe transportation of the material.

Now, under the present conditions the only remedy that we have is simply to refuse the material. Now, this bill asks Congress to pass a law that shall put the control of the manufacture of this material under supervision of a superintendent of explosives, probably an army or navy officer, although that is not mentioned in the bill; and that he

shall, through his subordinates and organization, stamp every box of explosives that is offered for transportation in such a way that we may know that it has been properly made, properly packed in the boxes, the absorbent material properly dried, all boxes of the proper thickness, etc. The law does not ask Congress to take any of the responsibility which the railroad companies have been and are still carrying, namely, if we kill some people or damage some property we are responsible for it and have to pay for it.

Mr. ESCH. Doctor, you have spoken very lucidly about high explosives. Will you explain the necessity of this legislation in the transportation, for instance, of cartridges and small-arms ammunition? Is there any danger?

Doctor DUDLEY. I think your point is very well taken, sir. Many experiments have been made. Let me say, first, if you will allow me just a second, that this matter is handled abroad very much more intelligently than in this country. Of course the genius of this Government, if I understand it rightly, leaves as much as possible to individual effort and holds us responsible for results. Abroad, as everybody knows, the government stands in loco parentis very much more. Here is a little book [exhibiting] which contains the explosive act of Great Britain, in addition to some other matter. It is the eleventh edition of the explosive act of Great Britain, passed in 1875. It goes not only into transportation, but the manufacture and storage and sale, very much more in detail than anything this bill calls for. Also I am in constant correspondence with the inspector of explosives of Great Britain. It is Major Kay now, formerly Colonel Magenda, and then Colonel Thompson. No man can make explosives in England at all unless he has a license, and no man can make an explosive that has not been submitted to the inspector of explosives, and proof that it is a safe explosive to make, and transport obtained. Also the inspector of explosives makes an annual report, of which I have a copy here. This happens to be the twenty-seventh. It is a perfect mine of literature on the subject of explosives. This act was passed in 1875, and the report has been published ever since and has been the compendium in England of what has absolutely taken place in the matter of explosives.

Now, coming again, sir, to the point of the transportation of small arms and ammunition, let me say, for your information, this report happens to cover 368 accidents. There is descriptive matter here of 368 accidents that took place in the realm of Great Britain during the year 1903.

Mr. ESCH. Notwithstanding that volume of law?

Doctor DUDLEY. Yes, sir; notwithstanding the volume of law. One of these accidents relates to a man who was carrying a bobbin of powder in the same hand with an open light—

The CHAIRMAN. Are there any accidents reported therein in connection with transportation?

Doctor DUDLEY. I have been through very carefully the whole file. This is the twenty-seventh number, and I can find only 6 accidents in transportation since this law was passed. None of these accidents of transportation were serious. The regulations, however, are much more stringent than this bill calls for. They control not only the manufacturing and packing and the regulations under which they shall be carried, etc., but they control the care of a criminal factor—



the railroad employees who are careless. In other words, it is quite possible to punish a railroad employee who does not properly handle explosives while they are in the control of the railroad company. They have a very long list of recommended matter for the rules and regulations of the railroad companies.

Now, as I say (coming back to your question about small arms), a large number of experiments have been made by the inspector of explosives of Great Britain in regard to the safety of transportation of fixed ammunition. One of the points is, if cartridges are put into a package together without any separating compartment between the cartridges the ordinary edge of the butt end of one cartridge may get against the percussion part of another, and under those conditions if you get a shock you get an explosion with possibly bullets or small-arms ammunition flying.

Mr. ESCH. That is not so very dangerous?

Doctor DUDLEY. That is not a very pleasant thing to contemplate. It is not so serious—

The CHAIRMAN. It would not wreck a train?

Doctor DUDLEY. It would not wreck a train. But there is this feature in connection, still further. Some very interesting experiments were made on the matter of how large an explosive of fixed ammunition must be before the firing of one would fire the whole mass. The experiments were made by taking fixed ammunitions and putting in boxes and connecting one in the central part of the box with an electric fuse and then firing. It was found with the ordinary powder fixed ammunition, as soon as the projectile gets so large as to weigh a pound, the fire of one fires the mass. In small-arms ammunition I do not think there is that danger.

Mr. ESCH. Have you any knowledge of railroad accidents arising from small-arms ammunition?

Doctor DUDLEY. I do not recollect any case where we have had any accident from small-arms ammunition. On the other hand, there should be some regulation by which the material should be properly packed in little compartments in the paper boxes, because if you dump them in a keg or in a paper and do them up together I fear you would have a good deal of difficulty, and, in fact, there are accidents of that kind mentioned in the reports.

Mr. MANN. Would they explode with sufficient force where they are free in the air, to make any difference, anyhow?

Doctor DUDLEY. I would not like to have a box here thrown on the floor and one that explodes coming my direction.

Mr. MANN. Are you experienced in the thing? They made experiments in my city of Chicago recently, where they threw whole stacks of them in a fire and then stayed all around it and it hurt nobody. Firemen will go as readily where there is a fire burning of such things as they will anywhere else. They say where they are not confined there is no force.

Doctor DUDLEY. That is very gratifying, of course. It would seem to me that possibly the danger, so to speak, of this bill to those who are dealing in fixed ammunition, has been very greatly magnified. This bill only applies to interstate commerce. It does not apply to distribution in the States. As I understand it, you have no power to legislate for distribution within States, but only for interstate commerce. Moreover, the packages are required only to be marked when

they leave the manufacturer, and not required to have a subsequent marking for reshipment. So that I rather thought, as I thought the matter over, that parties were a little bit more sensitive than they need to be.

Mr. ESCH. Was that accident in Ohio last fall on your line of road?

Doctor DUDLEY. Yes, sir; at the Crestline yard.

Mr. ESCH. Was that due to concussion in operating the train, or was it due to a collision?

Doctor DUDLEY. It was due to the ordinary shocks of coupling the train, at least so far as we know. I do not know that I can say positively why that accident occurred. I made a very careful study of the matter. I went to the works where that powder was made, and much of this information I have told in regard to the practice was developed by this visit I made to one of the works where this powder was made. As a matter of fact, the nondrying of the absorbent, the failure to put in antacid, very thin boxes, and packing cartridges with 75 per cent of nitroglycerin; all those things were found to be common practice at that works where this powder was made. My own belief is that that accident was due there to the leakage of some of the 75 per cent material, or some other, of the nitroglycerin, and ordinary shocks of transportation. As a matter of fact, I would say the train was being made up; and we have what is called a "hump" in the yard, which is simply a slight elevation.

Now, the cars that are going into a certain train are pushed on a certain track up on the top of this hump and are allowed to run down, by gravity, to join onto the rest of the train. There were 11 cars, of which this was the last one, as I remember, and joined onto the balance of the train. Another draft of 3 cars came over, and when that draft struck the car ahead, with powder in it, the explosion took place. There is a little discrepancy in the statements made as to whether the explosion was instantaneous or whether there was a little interval. It is not quite possible to tell, from the testimony of the three or four who were involved in the matter and who gave the information, whether the explosion took place instantly after the shock of the last draft or with a little bit of an interval. If there was an interval, it was a difficult thing to explain at all—if there was an interval of any appreciable time. If it took place almost instantly, it would easily be accounted for on the ground of leaky material.

Mr. ESCH. How many deputy inspectors would be required to carry out this bill?

Doctor DUDLEY. It would be difficult to say. If you will permit me, I will send to the committee a list. We have a list now, furnished partly by our transportation people and partly by the powder combination that is in this country. Most of the high explosives are made by one organization now.

The CHAIRMAN. Is there any exportation of high explosives?

Doctor DUDLEY. I do not know that there is. I could not tell you how many, but I would say, crudely, for the Pennsylvania Railroad system it would require probably twelve or fifteen inspectors, provided they had to stay all the while at the works. Now, it frequently happens that works do not ship every day. At the works where I made this investigation they were shipping out about five carloads a week, about 30,000 to 45,000 pounds of dynamite—of explosives, at any rate—about five carloads a week. Three of those would go on a

single day. It is the custom of the railroads to receive explosives on certain days only, and it would not be absolutely essential, probably, to have a man stay all the time at the place. I can not say positively, however.

I have one more point that I wanted to make before you, and that is why different railroads ask for this legislation. Why do they go ahead as they have been doing? Here is a copy of the high explosive circular which I wrote, and which, as you see, embraces three or four pages of printed matter, and governs the packing, etc. It needs revision now, and here [indicating] are notes to be used in the revision. We are engaged in that work now. Why do we not go ahead as we have been doing, and not ask for any legislation on this matter? Particularly for this reason, and I think I can make the point perfectly clear to you. Suppose that the Pennsylvania Railroad Company, through its proper organization, does put up a good stiff circular here, and appoints a man, as I have urged, its own inspector of explosives, and he goes around and visits these works and finds out whether they are doing what they ought to do; he keeps his eye on the transportation men to see that they are doing what they ought to do; and I am going to confess to you gentlemen, with all perfect honesty, that a majority of the accidents are our own fault.

I do not try to shirk out of it and say that a majority of the railroad accidents are the fault of the railroad company and not the fault of the powder. On the other hand, the manufacturer of the powder and packing, etc., has so great an influence that we can not ignore that. Now, I say, why do we not go ahead? Largely for this reason: Because this business is increasing. It is increasing enormously. I can not give you figures on the amount of explosives handled, but there are 130 places on the line east of Pittsburg and Erie where we either receive explosives from manufacturers or transship them or receive them from connecting lines. Now, of course, the inspector is not required at each of these places, you understand. They are transshipments, a great many of them, and we receive cars from connecting lines. It is in connection with this reception of material from connecting lines that we feel it is essential to have legislation. Suppose we make a circular?

We have no knowledge that a factory on the Erie Railroad follows the requirements of our circular, and we have only this remedy: We can refuse to receive that car. That is true. That impedes traffic very greatly; affects business very seriously. Now, on the other hand, if we have this inspector—the same conditions apply to all manufacturers, the same conditions apply to all, namely, that half, if I may use the expression, the smaller half, if you choose, on which the safety of transportation depends on the way and packing is made uniform throughout. That is one of the principal reasons why we ask, as I understand it, for this legislation.

I fancy I have talked more than I ought to have done, but I will go on if you would like, or, if you would like to ask me questions, I would be glad to answer what I can.

The CHAIRMAN. Is it practicable to cheaply and conveniently so pack and fix ammunition—cartridges—that it can be handled with approximate safety?

Doctor DUDLEY. I think there is no question about that.

The CHAIRMAN. What would be your method, for instance?

Doctor DUDLEY. Do you mean small-arms ammunition?

The CHAIRMAN. Yes, sir.

Doctor DUDLEY. Just simply pasteboard boxes divided into little square compartments, so that each cartridge is in its own compartment.

The CHAIRMAN. Each single cartridge?

Doctor DUDLEY. These are pasteboard boxes, with little pockets.

The CHAIRMAN. Suppose you wrap each one in paper, would not that be sufficient?

Doctor DUDLEY. Except for the danger of the paper wearing if they rubbed together—wearing through and bringing the metal of the base of one cartridge against the primer of another. I would fear a little bit dumping into a keg, if you choose—

The CHAIRMAN. Suppose they were fixed heads and points, so the fulminating powder could not come in contact?

Doctor DUDLEY. I think that would be a fairly reasonable construction.

The CHAIRMAN. With a guard of that kind there would be no objection to eliminating that class of traffic—

Doctor DUDLEY. I think, sir, if you will allow me, that the requirements of the bill—what is asked for in the bill—is only as to packing, so far as ammunition is concerned. There is nothing asked for otherwise in the bill, except so far as the packing is concerned.

The CHAIRMAN. I think the committee would say that you have made a strong presentation of this matter.

Mr. MANN. Certainly a very entertaining one.

The CHAIRMAN. And we will now hear from the other side.

Mr. CHRYSTIE. Mr. Chairman, I desire to ask Doctor Dudley this question. Certain ammunition is imported from Germany and other countries, and it is the custom to put up ammunition in cases of 200 or 250 pounds, and the provision of the law here provides for transportation in not greater packages than 100 pounds. Therefore, if this bill was carried, when this ammunition (caps we are mainly interested in) is imported into this country it would be necessary to break open the boxes and repack them. Is there any real necessity for that, Doctor Dudley?

Doctor DUDLEY. I am not quite sure how the bill is worded in that matter.

Mr. CHRYSTIE. It says at page 6, lines 5 and 6, that "no box, cask, or keg required by the provisions of this act shall when filled weigh more than 100 pounds."

Doctor DUDLEY. The reason for limitation to 100 pounds was this—that it was believed that one man could safely carry a package of 100 pounds. Now, in loading, if a man drops a package, there is a little danger, and consequently the limitation was simply one, not of any greater risk in transportation after it was loaded, but to facilitate loading. As a matter of fact, high explosives are not usually put up in packages of over 50 pounds.

Mr. CHRYSTIE. That is so in regard to explosives, but is it not really too sweeping a provision for ammunition caps?

Doctor DUDLEY. If you will allow me just one second I would like to say I did not draw this bill, as you know. Mr. McCrea had the bill drawn, and my own studies of the English explosives act, and what has taken place in Germany, Austria, France, etc., more or less trying to keep up with the progress, have led me to the idea that it would probably be advisable to modify this act a little bit, and give the

inspector of explosives a certain amount of discretionary power to waive or modify certain requirements, provided, in his judgment, safety was obtained. That is characteristic of the English explosives act. Now, for your information, let me say here is Cundhill's Dictionary of Explosives. Here is a book of 160 pages full of definitions of explosives, mellenite, maxinite, K. M. P. powder, and so on, all arranged alphabetically. What I am trying to bring to your attention is this, that there is an enormous mental activity in the development of explosives. We are getting new explosives all the while, and the classification of the bill tying it right down to what we know now would probably be a mistake. In other words, there ought to be some saving clause somewhere, so that we could provide for progress. New explosives are constantly coming up. Our friends here are interested in a new explosive, which may possibly require a new classification, namely, a safety explosive.

Mr. CHRYSTIE. Is it not a fact that the German regulations make a distinction as to the transportation of nitroglycerin compounds and compounds composed of nitrate of ammonia?

Doctor DUDLEY. It is a fact that there are distinctions in Germany between what are known as safety explosives and more hazardous explosives. I have had a long correspondence with the inspector of explosives in Great Britain on that subject, urging more strongly that it was a matter of good policy for all of us to pull together in this matter, and to get relaxation of regulations, or possibly lower freight rates, on what may be called "safety explosives." The position of the English people is very conservative. They say in answer:

We think that none of the regulations should be relaxed, but if you choose to give a lower freight rate there is no reason why you should not.

Mr. CHRYSTIE. Is it not a fact that in Germany, what they call "safety explosives" in their statute are carried as ordinary freight?

Doctor DUDLEY. I can not tell you that. I do not know. I do not care to stand here as the exponent of masurite; I do not care to stand here and blow your horn.

**STATEMENT OF MR. T. LUDLOW CHRYSTIE, COUNSEL FOR THE MASURITE EXPLOSIVE COMPANY, 50 BROADWAY, NEW YORK CITY.**

Mr. CHRYSTIE. Mr. Chairman and gentlemen of the committee, in the first place I desire to say that I do not come in opposition to this bill. As general counsel for the Masurite Explosive Company part of my duty has been to investigate the laws of many of the States as to the transportation, storage, and sale of explosives, and the laws in the States vary considerably. Personally I would be glad to see a uniform law passed, so far as Congress has the constitutional right to regulate such matters. So I do not appear in opposition to this bill, and desire to put ourselves on record as assisting all we can the general purpose of this bill. Mr. McCrea has informed us that he drafted this bill, and it therefore is to be taken from the transportation standpoint. I wish to-day to present a few suggestions from the manufacturers' standpoint. If the committee will note on page 6 of the bill—lines 19 to 23—there is a provision, as follows:

Accompanying each of such shipments in transportation there shall be a certificate from one of the said inspectors that the said shipment has been properly manufactured and duly packed and loaded in accordance with the requirements of this act.

Would it not be practical to accept a certificate from some responsible person in the manufactory, for instance, a certificate from the chief superintendent, or a certificate from the president of the company, that the explosive offered for interstate commerce had been properly manufactured and packed? The idea, I believe, of Doctor Dudley and Vice-President McCrea is to place the responsibility somewhere. Now, would not that result be accomplished by that sort of machinery? If this does not meet with your views, I urge this other point, that if a certificate is to be issued there should be some provision in the law, and there is no provision in this bill, as to when the inspector shall visit the factory. I suggest at line 23 such provision as this:

The United States inspector of explosives shall cause explosives to be inspected within twenty-four hours from receipt of notice that a shipper desires to make a shipment of explosives.

This surely should be unless there is a resident inspector. The reason for this is that the mining and quarrying interests often require cartridges of special strength, size, and time of decomposition. If inspection is not promptly made by Government inspectors, it would compel the manufacturer to keep a large stock of "specials" on hand. This keeping of a large stock of "specials" would in itself defeat the purpose of this bill.

The CHAIRMAN. What interests did I understand you to say you represented?

Mr. CHRYSTIE. I am counsel for the Masurite Explosive Company.

The CHAIRMAN. What is that?

Mr. CHRYSTIE. Masurite is a nitrate of ammonia compound, a non-hazardous high explosive, which is in large use in this country. The company has erected and has in operation at Masury, Trumbull County, Ohio, a large plant.

Mr. LOVERING. What is the origin of the name?

Mr. CHRYSTIE. The president of the company is Mr. F. L. M. Masury. Doctor Dudley spoke of the explosive combination—or trust, you might call it. The Masurite Explosive Company is not a member of the trust, and it is important for the company to be protected so that it can obtain prompt inspection of the explosives to be offered for interstate transportation.

In regard to the provision in the bill in reference to the inspection of factories: If we are going to get legislation on the explosive question, let us get effective legislation. I do not know how far Congress has got the right to go and inspect a man's factory. If Congress can inspect it for explosives, Congress can inspect it for hats that are shipped to another State and for shoes that are shipped to another State. Is it not a rather dangerous precedent? Could it be upheld? As soon as the product is offered for shipment, of course, there is no doubt at all that Congress has jurisdiction and can pass such regulations as are deemed proper.

The CHAIRMAN. Do you not think that Congress could prohibit a carrier from receiving for transportation to another State any traffic that was not in a condition prescribed by Federal law?

Mr. CHRYSTIE. With the United States Supreme Court dividing five to four on questions, I can hardly answer. If you eliminate from the bill the provisions in respect to the inspection of factories, and confine the bill to inspection of the product intended to be transported in interstate commerce, why, in my mind, you would make the

bill a beneficial and proper one. This inspection of factories and process is of interest to us for the reason that I advanced yesterday.

Our particular explosive, masurite, is made under a secret process. This observing of secrecy in manufacturing a chemical product is followed by a great many manufacturers. If the committee will look at page 8 of the bill, line 12, you will see the objectionable words, "The process of manufacture;" also on page 9, line 16, "Fully examine and inspect the process of manufacture;" again on page 9, line 22, "That he shall have the right to inspect and receive samples of the ingredients." We say of the ingredients, no! Of the finished product, yes! Examine the explosive all you want, analyze it, and subject it to any safety tests that the inspector may require; but do not ask us to give to the chief inspector and to the subinspectors—in other words, to make public—a process which for reasons of trade is private.

Mr. ADAMSON. Can you not satisfy the inspector without publicity, and without detriment to your business interests, and could not his statement be accepted?

Mr. CHRYSTIE. The inspector could submit masurite to every test for safety.

Mr. STEVENS. You heard what was testified as to the necessity for packing specially for transportation?

Mr. CHRYSTIE. Yes.

Mr. STEVENS. Could not that be done without exposing your trade secrets?

Mr. CHRYSTIE. Undoubtedly so.

Mr. STEVENS. That is what you care for, really?

Mr. CHRYSTIE. The protection of the secret, yes; but under this bill the inspectors would have the right to inspect the details of manufacture and to demand from us the ingredients and process.

Mr. ADAMSON. Suppose we provide in the bill for the protection by the inspector of your secrets?

Mr. CHRYSTIE. I would not like to have it put in that form. The chief inspector and his subinspectors might be the most close-mouthed individuals in the world, but as some one has said, a secret is no longer a secret after you have told it to a third person.

Mr. ADAMSON. If in any way you can satisfy the inspector so that he will stamp your product, it is no concern of the public what your secrets are?

Mr. CHRYSTIE. Of no concern at all. But if you could put in the bill something which would show that it is the intention to specify that the product is safe to ship—

Doctor DUDLEY. Yes, that is all that is necessary.

Mr. STEVENS. I would suggest that you had better frame your suggestions and transmit them to the committee so that they may be contained in the hearings.

Mr. CHRYSTIE. There is just one other point I wish to make in closing. I have just returned from Porto Rico, where I have seen people doing things down there in the same way as they did three or four hundred years ago, but I think that American ingenuity and brains stand for progress, and I believe my client has made progress in the art of explosives which entitles him to consideration.

Doctor Dudley has told you to-day that it is a fact there is a distinction made in Germany as to the laws affecting what are called safety explosives and the hazardous nitroglycerin explosives.

Many people are endeavoring to so advance the art that this element of danger will be eliminated. There are men who have made a life study along that line. The German Empire has recognized that there is such a thing as a safe high explosive by allowing certain nitrate of ammonia explosives, for instance, to be shipped as common, ordinary freight. What I would like very much to see, and what I make a plea for, is that a provision be inserted in the bill which shall use the term, "nonhazardous high explosives," in contradistinction to the nitroglycerin products, and that a class be made of nonhazardous high explosives, such as is made in Germany. I think this is fair, and I think it is an incentive which will drive manufacturers along the safety line.

As Doctor Dudley says, he does not want to advertise any particular product. I do not want to advertise and do not want to appear before this committee in that light at all, but I do know that my client is a responsible business man who has invested a fortune in perfecting a nonhazardous high explosive, and he is a man who has taken his education and his time and his money and applied them along the safety lines of explosives. I am not asking a new thing. Germany has recognized that there are safe explosives. Why should we not do the same? I believe that the surest and best road to obtain the results desired by this proposed bill is to recognize and encourage the manufacture of nonhazardous high explosives.

I thank the committee for this hearing, and as the time of the committee is limited I will ask leave that these three documents, which I now hand to the stenographer, be spread upon the record.

The CHAIRMAN. Yes; very well.

#### **ADDITIONAL STATEMENT OF DR. CHARLES B. DUDLEY, OF ALTOONA, PA.**

Mr. DUDLEY. May I say a word further? It is not asked that the manufacturer shall reveal the composition of his product. Doctor Dupree has every new explosive submitted to him, and he has certain tests which those explosives must stand. If the manufacturer is willing to reveal the constituents of the explosive, it is done, but if he is not so willing, it is not done. This whole book is made up on the theory of various manufacturers telling how they make their explosives.

The CHAIRMAN. You can prepare an amendment, perhaps, which will suit your purpose, providing that where a secret process or method is used, or ingredients are used that the manufacturer could not divulge without harm to his business, in such case the provisions of the paragraph on pages 8 and 9 should not apply, or some such thing as that. Put it in shape and send it to us.

Mr. STEVENS. And if Doctor Dudley would put in shape his suggestion as to discretion.

Mr. DUDLEY. I will be glad to do that.

Mr. ADAMSON. Would not we better provide that they should at least satisfy the inspector that it is safe, so that he can certify that it is safe? He need not divulge his secret if he can satisfy the inspector, if the inspector can be satisfied without it.

Mr. CHRYSTIE. I have made an examination of many of the State statutes on this subject, and I would say, incidentally, there is a United States statute—



The CHAIRMAN. Have you given that to the stenographer?

Mr. CHRYSTIE. I would hardly care to do that.

The CHAIRMAN. It might help us.

Mr. ADAMSON. If you can satisfy the inspector without divulging your secret that is all right, and if it is necessary that he should know the composition of your product in order to be able to certify that it is safe we can enjoin secrecy on him.

Mr. CHRYSTIE. No; we do not think we should be compelled to rely upon a statutory provision enjoining secrecy.

The CHAIRMAN. I think that other suggestion is practicable; that is, requiring the inspector to appear within a reasonable time after notice is given, twenty-four hours, or whatever time might be reasonable.

Mr. CHRYSTIE. You see it would hamper shipments if we had to wait indefinitely.

The CHAIRMAN. Yes; there is a good reason for that.

Mr. CHRYSTIE. I would like to ask Doctor Dudley to prepare some provision in regard to the bulk.

The CHAIRMAN. I think if you and Doctor Dudley would get together you would evolve such suggestions as might be valuable.

Mr. DUDLEY. I would like to ask if other manufacturers will be allowed to appear before your committee at another hearing?

Mr. ADAMSON. I represented that complaint when I asked you the other day about ammunition. I understand that there is a substantial accord between all parties as to ammunition?

The CHAIRMAN. Yes; as to its being safely packed.

Mr. DUDLEY. I did not know but the large manufacturers of explosives would like to have a hearing. Of course I did not know anything as to whether they had asked for a hearing or anything of the kind, or whether it was customary. I made the suggestion to find out. I know before the Senate committee they said that they would have a subsequent hearing for manufacturers, those who actually made the explosives.

The CHAIRMAN. We probably will not take the matter up again. We have a great many things to attend to, you know. We have been, as you see, holding sessions every day this week.

Mr. DUDLEY. Yes, you have been working very hard.

(Thereupon the committee adjourned.)

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*Affidavit of F. Elliott Cabot.*

COMMONWEALTH OF MASSACHUSETTS, *County of Suffolk, ss:*

F. Elliott Cabot, being duly sworn, says that he is assistant secretary of the Boston Board of Fire Underwriters in the city of Boston, State of Massachusetts; that on the fourth day of June, 1902, he attended a series of tests made upon the explosive masurite, which tests were made at the country residence of Mr. Fred. L. M. Masury, in the town of North Hempstead, Long Island; that he closely observed said tests, and that the results were as follows:

CONCUSSION TESTS.

1. About an ounce of masurite placed on an anvil and struck sharp blows with hand hammer. Result: No detonation or ignition.
2. About four ounces of masurite placed on an anvil and struck heavy blow with a 16-pound sledge. Result: No detonation or ignition.
3. About an ounce of masurite placed on a stone struck sharp blows with hand hammer. Result: No detonation or ignition.

4. About four ounces of masurite placed on a stone struck with a 16-pound sledge. Result: No detonation or ignition.

5. Seventy-two pounds iron weight allowed to fall 25 feet upon ten-ounce cartridge of masurite placed on anvil. Result: No detonation or ignition.

Masurite placed in steel cylinder having tight piston into it and upon masurite; weight allowed to fall on piston same distance as before. Result: No detonation and no ignition.

Repetition of same test, using same cylinder and the masurite that has been compressed in the last test. Result: No detonation or ignition.

Masurite placed in steel cylinder with plunger of smaller diameter resting upon masurite: seventy-two pounds weight allowed to fall three times upon plunger same distance as before. Result: No detonation or ignition.

6. Shooting through a can of about 12½ pounds of masurite four shots from 30-40 Government rifle, using smokeless powder and mushroom bullets. Result: No detonation or ignition.

7. Ditto, ditto, four shots as above, using steel jacketed bullets. Result: No detonation or ignition.

8. Can containing about ten pounds of masurite heated in direct contact with burning coal, shot through as above with mushroom bullets. Charcoal was around, under, and on top of masurite; waited until powder itself was burning, by actual contact with ignited carbon; then fired shots. Result: No detonation and no explosion.

#### FIRE TESTS.

9. Red-hot iron, ½ inch in diameter, run through a cartridge of masurite. Result: Masurite melted and ignited at point of contact; fire went out immediately on withdrawal of iron, except that paper of cartridge burned for a moment or so.

10. Red-hot iron, about one inch in diameter, run into a can containing about ten pounds of masurite. Result: Masurite melted and ignited; fire went out immediately after withdrawal of iron.

11. Cartridge of masurite placed upon forge fire and the latter blown vigorously. Result: Masurite melted and burned slowly.

12. About ten pounds of masurite thrown upon forge fire. Result: Masurite melted, vaporized, and burned.

13. Action of masurite when burning charcoal is placed upon a heap of it: That portion of masurite in contact with the charcoal melted, ignited, and burned. Fire went out of itself when out of contact of heat from charcoal.

14. A bundle of "parlor" matches, about 1½ inch in diameter, ignited in a heap of masurite. Result: Ignited and melted masurite where in contact with the heads of the matches, but extinguished itself immediately; likewise the matches.

15. Masurite covered with smokeless powder and latter ignited. Result: Masurite did not ignite.

16. Masurite covered with black powder and the latter ignited. Result: Masurite did not ignite.

17. Black powder covered with masurite and former ignited. Result: Masurite did not ignite.

18. Smokeless powder covered with masurite and former ignited. Result: Masurite slightly ignited, but fire did not burn and went out immediately.

19. Action of masurite when thrown upon red-hot iron plate, first in small quantities, then in large ones. Result: Masurite simmered, sputtered, and burned slowly.

20. Melting-pot filled with masurite covered with inverted funnel and placed upon forge fire; same blown until masurite decomposes and fumes come from funnel. Attempt made to light fumes. Result: No explosion. Could not light fumes with matches in bundles of five or six at a time. Vapor put matches out immediately.

#### ELECTRIC TESTS.

21. Masurite placed upon iron and series of electric sparks allowed to pass in contact with it. Means: A wire run over a file covered with masurite. Result: Sparks flying through the powder, which scorched and melted in spots. No detonation or explosion.

22. Masurite placed in electric arc formed by two carbons and strong current of electricity. Result: No explosion.

23. Copper wire heated to redness and finally melted by electric current while in contact with masurite. Result: Masurite melted and charred next to wire. No other result.

Twenty-five amperes fuse wire covered with masurite fused by electric current. Result: No explosion.

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### FRICTION TESTS.

24. Masurite placed on sand paper, rubbed with sand paper on block carrying 25 pounds weight. Result: No effect on masurite.

25. Ditto, ditto, emery cloth used in place of sand paper. Result: No effect on masurite.

26. Ditto, ditto, emery cloth on one surface and sand paper on other. Result: No effect on masurite.

### DETONATION TESTS.

27. Detonation of single cartridge of masurite in open air, using "double-strength" electrical fuse. Result: Loud report; no visible flame.

28. One cartridge of masurite with fuse and one without, *ends touching*. Result: Both detonated as in previous test.

29. One cartridge of masurite with fuse and six without, *ends touching*. Result: All seven detonated as in previous test.

30. One cartridge of masurite with fuse and one without, placed twenty-four inches apart on level. Result: Cartridge without fuse thrown about one rod by force of explosion; powder scattered unburnt and unexploded.

31. One cartridge of masurite with fuse and one without, placed twelve inches apart on level. Result: Same as in previous test.

32. One cartridge of masurite with fuse and one without, the latter hung over and eighteen inches from the former. Result: Did not burn, explode, or detonate the upper cartridge.

33. One cartridge of masurite hung in air with "double strength" fuse suspended from it and four inches below; fuse exploded. Result: Broke cartridge, spilled powder but did not explode it.

34. Cartridge of 40 per cent dynamite and cartridge of masurite placed twenty-four inches apart and dynamite exploded by a fuse. Result: No effect upon masurite except to break cartridge and scatter the powder.

35. Tests in bore-hole in rock, using about four ounces of masurite that had been placed in freezing mixture with temperature about zero, Fahrenheit, for one hour—taken out and immediately exploded. Result: Rock of about two tons completely broken. Largest piece could be easily loaded on a cart by one man.

\* \* \* \* \*

These tests were also performed before William McDevitt, Philadelphia Fire Underwriters' Association, Philadelphia, Pa., and the following gentlemen, who, I understand, represent the following interests:

J. R. Onderdonk, engineer of tests, Baltimore and Ohio Railroad, Baltimore, Md.

Dr. C. B. Dudley, chemist, Pennsylvania Railroad, Altoona, Pa.

W. W. Taylor, maintenance of ways department, New York Central and Hudson River Railroad, New York City.

Daniel W. Darling, vice-president, Milford Pink Granite Company, Milford, Mass.

R. L. Lovelace, purchasing agent, Milford Pink Granite Company, Milford, Pa.

Cyrus W. Perry, general sales agent, Masurite Explosive Company, New York City.

F. ELLIOT CABOT.

Sworn to before me this 23d day of December, 1902.

[SEAL.]

HORATIO N. GLOVER, Jr.,  
*Notary Public.*

COMMONWEALTH OF MASSACHUSETTS,  
OFFICE OF THE SECRETARY,  
*Boston, December 23, 1902.*

I hereby certify that at the date of the attestation hereto annexed, Horatio N. Glover, jr., was a notary public for the said Commonwealth, duly commissioned and constituted; that as such notary public he was by law authorized to administer oaths and take acknowledgments or deeds and other instruments throughout the Commonwealth; that to his acts and attestations, as such, full faith and credit are and ought to be given in and out of court, and that I believe the signature to the annexed attestation to be genuine.

In testimony of which I have hereunto affixed the seal of the Commonwealth the date first above written.

[SEAL.]

WM. M. OLIN,  
*Secretary of the Commonwealth.*

*Affidavit of William McDevitt.*

STATE OF PENNSYLVANIA, *County of Philadelphia*, ss:

William McDevitt, being duly sworn, says that he is chief of the electrical department for the Philadelphia Fire Underwriters' Association in the city and county of Philadelphia, State of Pennsylvania; that on the fourth day of June, 1902, he attended a series of tests made upon the explosive masurite, which tests were made at the country residence of Mr. F. L. M. Masury, in the town of North Hempstead, Long Island; that he closely observed said tests, and that the results were as follows:

## CONCUSSION TESTS.

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  4. About four ounces of masurite placed on a stone and struck with a 16-pound sledge. Result: No detonation or ignition.
  5. Seventy-two pounds iron weight allowed to fall twenty-five feet upon a ten-ounce cartridge of masurite placed on anvil. Result: No detonation or ignition.
- Masurite placed in steel cylinder having tight piston fitted into it and upon masurite; weight allowed to fall on piston same distance as before. Result: No detonation or ignition.
- Repetition of same test, using same cylinder and the masurite that had been compressed in the last test. Result: No detonation or ignition.
- Masurite placed in steel cylinder with plunger of smaller diameter resting upon masurite; seventy-two pounds weight allowed to fall three times upon plunger same distance as before. Result: No detonation or ignition.
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  7. Ditto, ditto, four shots as above using steel jacketed bullets. Result: No detonation or ignition.
  8. Can containing about ten pounds of masurite heated in direct contact with burning coal, shot through as above with mushroom bullets. Charcoal was around, under, and on top of masurite; waited until powder itself was burning by actual contact with ignited carbon; then fired shots. Result: No detonation and no explosion.

## FIRE TESTS.

9. Red-hot iron, about one-quarter inch in diameter run through a cartridge of masurite. Result: Masurite melted and ignited at point of contact; fire went out immediately on withdrawal of iron, except that paper of cartridge burned for a moment or so.
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15. Masurite covered with smokeless powder and latter ignited. Result: Masurite did not ignite.
16. Masurite covered with black powder and the latter ignited. Result: Masurite did not ignite.
17. Black powder covered with masurite and former ignited. Result: Masurite did not ignite.

## 30 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

18. Smokeless powder covered with masurite and former ignited. Result: Masurite slightly ignited, but fire did not burn and went out immediately.

19. Action of masurite when thrown upon red-hot iron plate, first in small quantities, then in larger ones: Masurite simmered, sputtered, and burned slowly.

20. Melting pot filled with masurite covered with inverted funnel and placed upon forge fire; same blown until masurite decomposes and fumes come from funnel. Attempt made to light fumes. Result: No explosion; could not light the fumes with matches in bundles of five or six at a time; vapor put matches out immediately.

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34. Cartridge of 40 per cent dynamite and cartridge of masurite placed about twenty-four inches apart and dynamite exploded by a fuse. Result: No effect upon masurite except to break cartridge and scatter the powder.

35. Test in bore hole in rock, using about four ounces of masurite that had been placed in freezing mixture with temperature about zero Fahrenheit for one hour, taken out and immediately exploded. Result: Rock of about two tons completely broken; largest piece could be easily loaded on a cart by one man.

\* \* \* \* \*  
These tests were also performed before Mr. F. Elliott Cabot, of the Boston Board of Fire Underwriters, Boston, Mass., and the following gentlemen, who, I understand, represent the following interests:

Charles B. Dudley, chemist, Pennsylvania Railroad Company, Altoona, Pa.

J. R. Onderdonk, engineer of tests, Baltimore and Ohio Railroad, Baltimore, Md.

W. W. Taylor, maintenance of ways department, New York Central and Hudson River Railroad, New York City.

Daniel W. Darling, vice-president Milford Pink Granite Company, Milford, Mass.

TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES. 31

R. L. Lovelace, purchasing agent Milford Pink Granite Company, Milford, Mass.  
Cyrus W. Perry, general sales agent Masurite Explosive Company, New York City.

WILLIAM McDEVITT.

Sworn to before me this 17th day of March, 1903.

[SEAL.]

WM. E. CAVENY,  
*Notary Public.*

(Commission expires February 27, 1905.)

STATE OF PENNSYLVANIA, *County of Philadelphia*, ss:

I, M. Russell Thayer, prothonotary of the county of Philadelphia and clerk of the courts of common pleas of said county, which are courts of record, having a common seal, being the officer authorized by the laws of the State of Pennsylvania to make the following certificate, do certify that Wm. E. Caveny, esq., before whom the annexed affidavit was made, was at the time of so doing a notary public for the Commonwealth of Pennsylvania, residing in the county of Philadelphia, duly commissioned and qualified to administer oaths and affirmations and to take acknowledgments and proofs of deeds or conveyances for lands, tenements, and hereditaments in said State of Pennsylvania, and to all whose acts as such, full faith and credit are and ought to be given, as well in courts of judicature as elsewhere; and that I am well acquainted with the handwriting of the said notary public and verily believe his signature thereto is genuine, and that said oath or affirmation purports to be taken in all respects as required by the laws of the State of Pennsylvania.

In testimony whereof I have hereunto set my hand and affixed the seal of said court this 18th day of March, in the year of our Lord one thousand nine hundred and three (1903).

[SEAL.]

M. RUSSELL THAYER, *Prothonotary.*

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*Affidavit of Cyrus W. Perry.*

STATE OF NEW YORK, *County of New York*, ss:

Cyrus W. Perry, being duly sworn, says that he is the general sales agent of the Masurite Explosive Company in the city of New York, and that on or about June 20, 1902, he witnessed a test made upon the explosive masurite, which test was made at the country residence of Mr. Fred. L. M. Masury, in the town of North Hempstead, Long Island; that he closely observed said test, and that it was as follows:

Eleven cases (550 pounds) of masurite, packed ready for shipment, were entirely surrounded with wood above, below, and on all sides (nearly one-half cord of wood being used up). The wood was then ignited on four sides, making an intense heat. It was noticed that when masurite commenced to burn, on account of its contact with the burning wood, the gas given off by it put out the fire of the wood which was above the cases. The wood remained unignited until apparently all the masurite had been consumed, when it took fire again. The masurite was apparently all consumed in just thirty-three (33) minutes from the time of lighting the fire. The fire burnt for about fifteen (15) minutes after this. The masurite did not explode.

From each case a cartridge had been selected by Doctor Dudley, of the Pennsylvania Railroad, and was exploded in his presence immediately before the above test was made by the proper means of electrical exploders.

The above test was performed in the presence and at the request of Dr. C. B. Dudley, representing the Pennsylvania Railroad, who directed the arrangement of the cases, combustible material, and points of starting fire.

Mr. Fred. L. Masury, of the Masurite Explosive Company, was also present at above test.

CYRUS W. PERRY.

Sworn to before me this 13th day of December, 1902.

[SEAL.]

JAMES P. J. MORRIS,  
*Notary Public, New York County.*

## 32 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

*Federal law, United States Compiled Statutes, 1901, volume 3.*

Commerce and Navigation, Chapter 6.—Carrying explosives or other dangerous articles forbidden; animals, how carried; penalties.]

SEC. 8. That it shall not be lawful to take, carry, or have on board of any such steamship or other vessel any nitroglycerin, dynamite, or other explosive article or compound, nor any vitriol or like acids, nor gunpowder, except for the ship's use, nor any article or number of articles, whether as a cargo or ballast, which, by reason of the nature or quantity or mode of storage thereof, shall, either singly or collectively, be likely to endanger the health or lives of the passengers or the safety of the vessel, and horses, cattle, or other animals taken on board of or brought in any such vessel shall not be carried on any deck below the deck on which passengers are berthed, nor in any compartment in which passengers are berthed, nor in any adjoining compartment, except in a vessel built of iron and of which the compartments are divided off by water-tight bulkheads extending to the upper deck. For every violation of any of the provisions of this section the master of the vessel shall be deemed guilty of a misdemeanor, and shall be fined not exceeding \$1,000 and be imprisoned for a period not exceeding one year. (Act August 2, 1882, ch. 374, sec. 8, 22 Stat. L., 189.)

Revised Statutes, section 4278, forbids the transportation of explosives on any vessel or vehicle engaged in the transportation of passengers. Revised Statutes, section 4279, provides how such explosives may be shipped on vessels not engaged in the transportation of passengers. (See notes to said section.)

[Commerce and Navigation, Chapter 6, section 4278.—Transportation of nitroglycerin.]

It shall not be lawful to transport, carry, or convey, ship, deliver on board, or cause to be delivered on board, the substance or article known or designated as nitroglycerin, or glynn oil, nitrooleum or blasting oil, or nitrated oil, or powder mixed with any such oil, or fiber saturated with any such article or substance, upon or in any vessel or vehicle used or employed in transporting passengers by land or water between a place in any foreign country and a place within the limits of any State, Territory, or district of the United States, or between a place in one State, Territory, or district of the United States and a place in any other State, Territory, or district thereof.

Act July 3, 1866 (ch. 162, sec. 1, 14 Stat. L., 81).

Knowingly transporting or delivering, or causing to be delivered nitroglycerin, nitrooleum, or blasting oil, or nitrated oil, or powder mixed with any such oil, or fiber saturated with any such substance or article, on board any vessel or vehicle employed in conveying passengers by land or water, between any place in a foreign country and any place within the United States, or between a place in one State, Territory, or district of the United States and a place in any other State, Territory, or district thereof, is punishable by Revised Statutes, section 5353.

When the death of any person is caused by the explosion of any quantity of such articles, or either of them, by the same being placed upon any vessel or vehicle to be transported in violation of Revised Statutes, section 5353, or while the same is being so transported, or while the same is being removed from any such vessel or vehicle, every person who knowingly placed or aided or permitted the placing of such articles on such vessel or vehicle to be so transported is guilty of manslaughter, and is punishable by imprisonment for a period of not less than two years, by Revised Statutes, section 5354.

Taking, carrying, or having on board of any steamship or vessel engaged in the transportation of passengers from foreign ports to ports of the United States of any nitroglycerin, dynamite, or any other explosive article or compound, vitriol, or like acids, gunpowder, except for the ship's use, or any article or number of articles, whether as cargo or ballast, which, by reason of the nature, or quantity, or mode of storage, shall, either singly or collectively, be likely to endanger the health or lives of the passengers or the safety of the vessel, is forbidden by act of August 2, 1882, chapter 374, section 8, set forth above.

[Section 4279.—Packing and marking nitroglycerin.]

It shall not be lawful to ship, send, or forward any quantity of the substances or articles named in the preceding section, or to transport, convey, or carry the same by a vessel or vehicle of any description, upon land or water, between a place in a foreign country and a place within the United States, or between a place in any State, Territory, or district of the United States, and a place in any other State, Territory, or district thereof, unless the same shall be securely inclosed, deposited, or

packed in a metallic vessel, surrounded by plaster of paris, or other material that will be nonexplosive when saturated with such oil or substance, and separate from all other substances, and the outside of the package containing the same be marked, printed, or labeled in a conspicuous manner with the words "Nitroglycerin, dangerous."

Act July 3, 1866 (ch. 162, sec. 3, 14 Stat. L., 82):

A penalty is provided for shipping, sending, or forwarding any quantity of the substances or articles named in Revised Statutes, section 4278, in any manner other than as provided by this section by Revised Statutes, section 5355.

[Section 4280.—Regulation by States of traffic in nitroglycerine.]

The two preceding sections shall not be so construed as to prevent any State, Territory, district, city, or town within the United States from regulating or from prohibiting the traffic in or transportation of those substances between persons or places lying or being within their respective territorial limits or from prohibiting the introduction thereof into such limits for sale, use, or consumption therein. (Act July 3, 1866, ch. 162, sec. 5, 14 Stat. L., 82.)

[Section 4472 (as amended 1877, 1901).—Dangerous articles not to be carried on passenger steamers; (gasoline, etc., in automobiles)].

No loose hay, loose cotton, or loose hemp, camphene, nitroglycerine, naphtha, benzene, benzole, coal oil, crude or refined petroleum, or other like explosive burning fluids, or like dangerous articles, shall be carried as freight or used as store on any steamer carrying passengers; nor shall baled cotton or hemp be carried on such steamers unless the bales are compactly pressed and thoroughly covered with bagging of similar fabric and secured with good rope or iron bands; nor shall gunpowder be carried on any such vessel, except under special license; nor shall oil of vitriol, nitric or other chemical acids be carried on such steamers except on the decks or guards thereof, or in such other safe part of the vessel as shall be prescribed by the inspectors.

Refined petroleum which will not ignite at a temperature less than 110° of Fahrenheit thermometer may be carried on board such steamers upon routes where there is no other practicable mode of transporting it, and under such regulations as shall be prescribed by the board of supervising inspectors, with the approval of the Secretary of the Treasury; and oil or spirits of turpentine may be carried on such steamers when put up in good metallic vessels, or casks or barrels well and securely bound with iron, and stowed in a secure part of the vessel; and friction matches may be carried on such steamers when securely packed in strong, tight chests or boxes, the covers of which shall be well secured by locks, screws, or other reliable fastenings, and stowed in a safe part of the vessel at a secure distance from any fire or heat. All such other provisions shall be made on every steamer carrying passengers or freight to guard against and extinguish fire as shall be prescribed by the board of supervising inspectors and approved by the Secretary of the Treasury.

Nothing in the foregoing or following sections of this act shall prohibit the transportation by steam vessels of gasoline or any of the products of petroleum when carried by motor vehicles (commonly known as automobiles) using the same as a source of motive power: *Provided, however*, That all fire, if any, in such vehicles or automobiles be extinguished before entering the said vessel, and that the same be not relighted until after said vehicle shall have left the same: *Provided, further*, That any owner, master, agent, or other person having charge of passenger steam vessels shall have the right to refuse to transport automobile vehicles, the tanks of which contain gasoline, naphtha, or other dangerous burning fluids. (Act Feb. 28, 1871, ch. 100, sec. 4, 16 Stat. L., 441; act Feb. 27, 1877, ch. 69, sec. 1, 19 Stat. L., 252; act Feb. 20, 1901, ch. 386, 31 Stat. L., 799.)

This section is amended by act February 27, 1877, chapter 69, section 1, cited above, by striking out, after the words "upon routes where there is no other" the word "practical," and substituting therefor the word "practicable." It is further amended by act February 20, 1901, chapter 386, cited above, by adding at the end of the section as originally enacted the provisions beginning with the words "Nothing in the foregoing," etc., to the end of the section as set forth here.

See note under Revised Statutes, section 4470.

Other provisions regulating the carriage of explosives or other dangerous substances or articles are contained in Title XLVII, "Regulation of commerce and navigation," chapter 6. The punishment for unlawfully transporting explosives, etc., is prescribed by Revised Statutes, sections 5353-5355.



## 34 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

[Steam vessels, chapter 2, section 4475.—Mode of packing dangerous articles.]

All gunpowder, nitroglycerine, camphene, naphtha, benzine, benzole, coal oil, crude or refined petroleum, oil of vitriol, nitric or other chemical acids, oil or spirits of turpentine, friction matches, and all other articles of like character, when packed or put up for shipment, shall be securely packed and put up separately from each other and from all other articles; and the package, box, cask, or other vessel containing the same shall be distinctly marked on the outside with the name or description of the article contained therein. (Act Feb. 28, 1871, ch. 100, sec. 5, 16 Stat. L., 442.)

See note under Revised Statutes, section 4472.

[Section 4476.—Punishment for unlawfully shipping dangerous articles.]

Every person who packs or puts up, or causes to be packed or put up, for shipment any gunpowder, nitroglycerine, camphene, naphtha, benzine, benzole, coal oil, crude or refined petroleum, oil of vitriol, nitric or other chemical acids, oil or spirits of turpentine, friction matches, or other articles of like character otherwise than as directed by the preceding section, or who knowingly ships or attempts to ship the same or delivers the same to any such vessel as stores, unless duly packed and marked, shall be deemed guilty of a misdemeanor, and punished by fine not exceeding two thousand dollars, or imprisonment not exceeding eighteen months, or both; one-half of the fine to go to the informer, and the articles to be liable to seizure and forfeiture. (Act Feb. 28, 1871, ch. 100, sec. 5, 16 Stat. L., 442.)

See note under Revised Statutes, section 4472.

[Crimes, chapter 3, section 5353.—Transportation of nitroglycerine, etc., in passenger conveyances.]

Every person who knowingly transports, or delivers or causes to be delivered, nitroglycerine, nitroleum or blasting oil, or nitrated oil, or powder mixed with any such oil, or fiber saturated with any such substance or article, on board any vessel or vehicle whatever, employed in conveying passengers by land or water between any place in a foreign country and any place within the United States, or between a place in one State, Territory, or district of the United States and a place in any other State, Territory, or district thereof, shall be punished by a fine of not less than one thousand dollars nor more than ten thousand dollars; one-half to the use of the informer.

Act July 3, 1866 (ch. 162, sec. 1, 14 Stat. L., 81):

Provision prohibiting the transportation of nitroglycerine on passenger vessels, regulating the manner of packing the same for transportation on other vessels, and providing for regulations by State authority of the traffic therein, are contained in Revised Statutes, sections 4278-4280.

[Section 5354.—Death caused by such transportation deemed manslaughter.]

When the death of any person is caused by the explosion of any quantity of such articles, or either of them, while the same is being placed upon any vessel or vehicle, to be transported in violation of the preceding section, or while the same is being so transported, or while the same is being removed from such vessel or vehicle, every person who knowingly placed or aided, or permitted the placing of such articles upon such vessel or vehicle, to be so transported, is guilty of manslaughter, and shall suffer imprisonment for a period not less than two years. (Act July 3, 1866, ch. 162, sec. 2, 14 Stat. L., 81.)

See note under preceding section.

[Section 5355.—Transportation of nitroglycerine, etc., how allowed.]

Every person who knowingly ships, sends, or forwards any quantity of the articles mentioned in section fifty-three hundred and fifty-three, or who transports the same by any mode of conveyance upon land or water, between any of the places specified in that section, unless such articles be securely inclosed, deposited, or packed in a metallic vessel surrounded by plaster of paris or other nonexplosive material when saturated with such oil, and separated from all other substances, and the outside of the package be marked, printed, or labeled in a conspicuous manner with the words "Nitroglycerine; dangerous," shall be punished by a fine of not less than one thousand nor more than five thousand dollars; one-half to the use of the informer. (Act July 3, 1866, ch. 162, sec. 3, 14 Stat. L., 81.)

See note under Revised Statutes, section 5353.

*United States Compiled Statutes, 1901, volume 2.*

[Duties upon imports—Explosive substances.]

420. Firecrackers of all kinds, eight cents per pound, the weight to include all coverings, wrapping, and packing material.

421. Fulminates, fulminating powders, and like articles, not specially provided for in this act, thirty per centum ad valorem.

422. Gunpowder, and all explosive substances used for mining, blasting, artillery, or sporting purposes, when valued at twenty cents or less per pound, four cents per pound; valued above twenty cents per pounds, six cents per pound.

423. Matches, friction or lucifer, of all descriptions, per gross of one hundred and forty-four boxes, containing not more than one hundred matches per box, eight cents per gross; when imported otherwise than in boxes containing not more than one hundred matches each, one cent per one thousand matches.

424. Percussion caps, thirty per centum ad valorem; cartridges, thirty-five per centum ad valorem; blasting caps, two dollars and thirty-six cents per one thousand caps.

ALABAMA, 1901.

Sec. 2971. It is the duty of the corporate authorities of every city or town corporate within the State to provide a suitable fireproof building without the limits of the town or city for the storage of gunpowder or other explosive material on such terms as the corporate authorities may prescribe.

Sec. 5351. Any person who keeps on hand at any time within the limits of any incorporated city or town, for sale or for use, more than fifty pounds of gunpowder must, on conviction, be fined not less than one hundred dollars.

Code of Alabama of 1896.

REVISED STATUTES ARIZONA, 1901.

Sec. 352. Every person who shall keep or store, or cause to be kept or stored, or aid or assist any person in keeping or storing, hercules, dynamite, or giant powder in greater quantities than twenty-five pounds at one time, or blasting or gunpowder in greater quantities than fifty pounds at any one time, in or upon any building or premises within a distance of one-half a mile of the exterior limits of any city, village, or town in this Territory, except in vessels, railroad cars, or vehicles receiving and keeping the same in the course of and for the purpose of transportation alone, is punishable by a fine of not less than two hundred dollars nor more than one thousand dollars, or imprisonment in the county jail not less than one month nor more than six months, or by both such fine and imprisonment.

Sec. 353. Any person who shall keep or store, or cause to be kept or stored, or aid in keeping or storing, any percussion caps, gunpowder, or other blasting powder in or upon any building or premises where hercules, dynamite, or giant powder is kept or stored, or at a less distance than two hundred feet of the building or premises where said hercules, dynamite, or giant powder is kept or stored, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than two hundred dollars nor more than one thousand dollars, or imprisonment in the county jail not less than six months, or by both such fine and imprisonment.

Sec. 354. Any person who shall, after January 1, 1902, knowingly sell or have in his possession any dynamite, nitroglycerin, or other highly explosive material, or any fuse, or who shall cause the same to be transported from point to point in this Territory, without having plainly marked in large letters, in a conspicuous place on the box or package containing such explosive material, the name and explosive character thereof, and without having plainly marked upon the wrapper of each stick of dynamite or other explosive material, or package of fuse, the date of the manufacture thereof, is guilty of a misdemeanor.

ARKANSAS.

There appear to be no provisions in the laws of Arkansas covering the question of transportation and storage of explosives.

Laws of 1901 not in the library.

PENAL CODE CALIFORNIA, 1901.

Sec. 171a. Bringing narcotics, intoxicants, or explosives to or in the vicinity of State prisons, jails, or other reformatories.

## 36 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

Any person, not authorized by law, who brings into any State prison, jail, or reformatory in this State, or within the grounds belonging or adjacent to any such institution, any opium, morphine, cocaine, or other narcotic, or any intoxicating liquor of any kind whatever, or any firearms, weapons, or explosives of any kind, is guilty of a felony. (Commissioners' amendment, approved Mar. 16, 1901; took effect July 1, 1901.)

SEC. 180a. Any person, not authorized by law, who brings into either of the State prisons of the State of California, or any reformatory therein, or within the grounds of said institutions, or who brings into or passes into any jail within the State of California, any opium, morphine, cocaine, or other narcotics, or any intoxicating liquors of any kind whatever, or firearms, weapons, or explosives of any kind, is guilty of a felony, and upon conviction thereof shall be punished by imprisonment in the State prison for a term of not less than one, nor more than five years, and shall be disqualified from holding any State office or position in the employ of this State. (Amendment, approved Mar. 8, 1901; Stats., 1901, p. 107; took effect immediately.)

SEC. 375. Keeping gunpowder, etc., unlawful.

Every person who makes or keeps gunpowder, nitroglycerin, or other highly explosive substance, within any city or town, or who carries the same through the streets thereof, in any quantity or manner such as is prohibited by law, or by any ordinance of such city or town, is guilty of a misdemeanor.

SEC. 375a. Records of sales and other transfers of nitroglycerin and other high explosives.

It is the duty of each and every person, association, joint stock company, and corporation, manufacturing, storing, selling, transferring, disposing of, or in any manner dealing in, or with, or using, or giving away nitroglycerin, dynamite, vigorite, hercules powder, giant powder, or other explosive, by whatever name known, to keep at all times an accurate journal, or book of record, in which must be entered, from time to time, as it is made, each and every sale, delivery, transfer, gift, or other disposition made by such person, firm, association, joint stock company, or corporation, in the course of business or otherwise, or any quantity of such explosive substances. Such journal or record book must show, in a legible handwriting, to be entered therein at the time, a complete history of such transaction, stating the name and quantity of the explosive sold, delivered, given away, transferred, or otherwise disposed of; the name, place of residence, or business of the purchaser or transferee; the name of the individual to whom delivered, with his or her address, with a description of such individual sufficient for identification.

Such journal or record book must be kept by the person, firm, association, joint stock company, or corporation so selling, delivering, or otherwise disposing of such explosive substance or substances, in his or their principal office or place of business at all times subject to the inspection and examination of the peace officers, or other police authorities of the State, county, or municipality where the same is situated, on proper demand made therefor. Any failure or neglect to keep such book, or to make the proper entries therein at the time of the transaction, as herein provided, or to exhibit the same to the peace officers or other police authorities on demand, is deemed a misdemeanor, and punishable accordingly. In addition to such punishment, and as a cumulative penalty, such person, firm, association, joint stock company, or corporation so offending, shall forfeit, for each offense, the sum of two hundred and fifty dollars, to be recovered in any court of competent jurisdiction. The party instituting an action for such forfeiture shall not be entitled to dismiss the same without consent of the court before which the suit has been instituted. Nor shall any judgment recovered be settled, satisfied, or discharged save by order of such court, after full payment into court, and all moneys so collected must be paid to the party bringing the suit. (Commissioners' amendment, approved Mar. 16, 1901; took effect July 1, 1901.)

SEC. 601a. Recklessly having dynamite or other high explosives at certain public places.

Any person who, in any public street or highway of any county, city, or town, or at, in, or near to any theater, hall, public or private school, or college, church, hotel, or other public building, or at, in, or near to any private habitation, or in, on board of, or near any railway passenger train, or steam or street car or train, or steam or other vessel engaged in carrying passengers, or ferryboat, or other public place, where human beings ordinarily pass and repass, recklessly or maliciously has in his possession any dynamite, nitroglycerin, vigorite, hercules powder, giant powder, or other high explosive, or who recklessly, or maliciously, by use of such means, intimidates, terrifies, or endangers any human being, is guilty of a felony. (Commissioners' amendment, approved Mar. 16, 1901; took effect July 1, 1901.)

SEC. 601b. Presumption of reckless and malicious possession of high explosives.

Any person not regularly engaged in the manufacture, sale, transportation, or legitimate use of blasting operations, or in the arts, of such substances as are named in the preceding section, is presumed, *prima facie*, to be guilty of a reckless and malicious possession thereof, within the meaning of the foregoing section, if any such substance is found upon him, or in his possession, in any of the places or under any of the circumstances specified in said section. (Commissioners' amendment, approved Mar. 16, 1901; took effect July 1, 1901.)

SEC. 601c. Knowingly keeping or having high explosives in ones possession.

No person must knowingly keep or have in his possession any dynamite, vigorite, nitroglycerin, giant powder, hercules powder, or other high explosive, except in the regular course of business carried on by such person, either as a manufacturer thereof, or merchant dealing in the same, or for use in legitimate blasting operations, or in the arts, or while engaged in transporting the same for others, or as the agent or employé of others engaged in the course of such business or operations. Any other possession of any such explosive substances as are named in this section is unlawful; and the person so unlawfully possessing it is punishable by imprisonment in the State prison not exceeding five years, or by fine not exceeding five thousand dollars, or by both such fine and imprisonment. (Commissioners' amendment, approved Mar. 16, 1901; took effect July 1, 1901.)

SEC. 601d. Transporting high explosives into or through incorporated cities, towns, etc.

Any person, firm, or corporation that takes, carries, or transports, or causes to be taken, carried, or transported, any dynamite, vigorite, nitroglycerin, hercules or giant powder, or other high explosive, into the limits of, or through or across any incorporated city or town in this State, or into, through or across any harbor for shipping, in any manner, condition, or quantity, or otherwise, in violation of the laws or ordinances of such city or town, or of the laws or regulations governing such harbor, in addition to the penalties provided or imposed by such laws, ordinances, or regulations, forfeits to the State of California all such explosive substances, as well as the cases inclosing the same. Such forfeiture may be sued for by any citizen of any city for himself and the State; and the goods or property, when so forfeited and recovered by judgment of the court, must be sold, and the proceeds divided, the person so suing taking one-half to himself for his own benefit, and paying the other half into the State treasury. The State shall not be liable for any cost or expense in any suit or proceeding. (Commissioners' amendment, approved Mar. 16, 1901; took effect July 1, 1901.)

#### COLORADO, 1902.

SEC. 3692. Dynamite, nitroglycerine, etc., may not be carried on any train of cars used in transporting passengers: "Provided, That an ordinary freight train, with a caboose or passenger car used as a caboose, shall not be construed as a train of cars used in transporting passengers within the meaning of this act."

SEC. 3693. It shall not be lawful to ship, send, or forward nitroglycerine, glycerine oil, nitrated oil, nitroleum, or blasting oil, or to transport any of the same upon any vehicle of any description, or to deliver the same to be transported, carried, or conveyed, unless the same shall be securely inclosed, deposited, or packed in a metallic vessel, surrounded by plaster of Paris or other material that shall be nonexplosive when saturated with such oil or substance, and separate from all other substances, and the outside of the package containing the same to be marked or labeled in a conspicuous manner with the words "Nitroglycerine—Dangerous."

SEC. 3694. In case of violation a penalty is provided of a fine not exceeding five thousand dollars, or imprisonment in penitentiary not exceeding two years, or both.

SEC. 3695. If death results to any one from the violation of this act, the guilty parties shall be deemed guilty of manslaughter. Punishment not less than two nor more than ten years in penitentiary.

SEC. 3696. It shall be unlawful for any person or persons, partnership or corporation, to sell or offer for sale or take or solicit orders of sale or purchase or use, or have on hand, or in store, for the purpose of sale or use in this State, any Giant, Hercules, Atlas, Venture, or any other high explosives containing nitroglycerine, unless on each and every box or package and wrapper containing any such Giant, Hercules, Atlas, or Venture, or any other high explosive containing nitroglycerine, there shall be plainly stamped or printed the name and place of business of the person or partnership or corporation by whom or which the same was manufactured, and the exact and true date of its manufacture, and the percentage of nitroglycerine or other high explosive contained therein.

SEC. 3697. It shall be unlawful for any person or persons, partnership or corporation, to have two or more dates in any such box or package containing Giant, Her-

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cules, Atlas, or Venture, or any other high explosives containing nitroglycerine; it shall further be unlawful for any person or persons, partnership or corporation, to use any box, package, or wrapper formerly used by any other person or persons, partnership or corporation, in packing of Giant, Hercules, Atlas, Venture, or other high explosives containing nitroglycerine, and the name and date on such box or package shall be the same as on the wrapper containing such Giant, Hercules, Atlas, Venture, or other explosives containing nitroglycerine.

SEC. 3698. If any person or persons, partnership or corporation, shall violate any of the provisions of this act, such person or persons, the members of such partnership, or the officers or agents of such corporations shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by a fine of not more than five thousand dollars or by imprisonment in the county jail for not more than one year, or by both such fine and imprisonment, in the discretion of the court. (Mills's Annotated Statutes, 1891.)

SEC. 2209a. Mine inspector has authority to direct location of powder, etc., stored at the mines.

SEC. 4403 (35a). The city council or board of trustees of any incorporated city or town, whether incorporated under the general laws or by special charter, be and are hereby authorized to regulate or prevent by ordinance, the storage of gunpowder and other high explosives within the corporate limits, or within one mile of the corporate limits of such city or town. (Mills's Annotated Statutes, Supplement of, 1891-1896.)

### CONNECTICUT, 1901.

It is necessary to obtain license to deal in explosives stronger than gunpowder.

The selectmen of a town may direct the owner at any time to move gunpowder to another location, and if he refuses, move it at his expense.

No person shall manufacture or store any explosive material or compound, except gunpowder, near another person's property in quantity sufficient to endanger the lives or safety of persons, or to injure their property. Every person so offending shall be liable for all injury, etc. (Revised laws of Connecticut, 1888, sec. 2631 et seq.)

Nitroglycerine and other explosives must have plain and legible label describing contents. Penalty for failure to comply, fine of not more than ten thousand dollars and not more than five years in the penitentiary. (Revised laws of Connecticut, 1888, sec. 3985.)

Transportation of explosives must be in accordance with regulations made by board of railway commissioners. (Session laws of Connecticut, 1899, ch. 8, p. 988.)

### FLORIDA, 1899.

There appear to be no provisions in the laws of Florida covering the question of transportation and storage of explosives.

### GEORGIA.

SEC. 1151 (1187). Gunpowder shall not be deposited in any arsenal contrary to any ordinance or by-law of the city where it is situated.

SEC. 1476 (1465). The several incorporated towns or cities of this State within their corporate limits, and the ordinaries within their respective counties (out of said corporate limits) have authority to make and enforce all needful rules and regulations touching the keeping of gunpowder so as not to endanger the lives and property of the citizens.

SEC. 2291 (1463). All owners, agents, or others, who have any gunpowder, more than five pounds, or dynamite or other dangerous explosive, transported upon water, railroad, or otherwise, shall have the word "Gunpowder," "Dynamite," or other name of the explosive marked upon each package so transported in large letters.

SEC. 2292. Penalty in case of violation is that the goods are liable to seizure and sale; one-half of the proceeds goes to the informer and one-half to the military fund. (Code of Georgia of 1895 and supplement of 1901.)

### PENAL CODE, IDAHO, 1901.

SEC. 4752. Gunpowder, unlawful keeping of:

Every person who makes or keeps gunpowder, nitroglycerin, or other highly explosive substance, within any city or town, or who carries the same through the streets thereof, in any quantity or manner prohibited by law, or by any ordinance of such city or town, is guilty of a misdemeanor.

## ILLINOIS.

It is a public nuisance—

6. To carry on the business of manufacturing gunpowder, nitroglycerin, or other highly explosive substances, or mixing or grinding the materials therefor, in any building within twenty rods of any valuable building erected at the time such business may be commenced.

7. To establish powder magazines near incorporated towns, at a point different from that appointed according to law by the corporate authorities of the town, or within fifty rods of any occupied dwelling house.

## IOWA, 1900.

Cities and towns have power:

Sec. 713. They shall have power to provide for the inspection of steam boilers, and all places used for the storage of explosives or inflammable substances or materials, and to prescribe the necessary means and regulations to secure the public against accidents and injuries therefrom, and to assess the costs and expenses of such proceedings against the property and owners thereof, in the manner provided for special assessments.

Sec. 714. They shall have power to regulate the transportation and keeping of gunpowder, inflammable oils, or other combustibles, and to provide or license magazines for storing the same, and to prohibit their location or maintenance within a given distance of the corporate limits of such cities or towns. (Code of Iowa of 1897.)

## INDIANA.

Sec. 2304 (E. S. 1246) Limits—Precautions. 2.—It shall be unlawful for any person, firm, or corporation to engage in the manufacture of dynamite or other nitro-explosive compound within one hundred and sixty rods of any occupied dwelling or public building, and it shall also be unlawful for any person, firm, or corporation to store dynamite or other nitro-explosive compound in any quantity exceeding one hundred pounds within the limits of any municipal corporation, or within forty rods of any occupied dwelling or public building, without having first obtained in writing the consent of all adjacent landowners, or to transport or carry the same in any package not having written or printed on two sides thereof, in plain and distinct letters, the words, "dynamite" and "dangerous," or in any railroad car or water craft without having the package containing the same marked as above; and anyone convicted of the violation of the provisions of this section shall be fined in any sum not less than one hundred nor more than five hundred dollars, or imprisoned in the county jail not less than three months nor more than one year, or both, at the discretion of the court or jury trying the cause.

## KANSAS, 1901.

There appear to be no provisions in the laws of Kansas covering the question of transportation and storage of explosives.

## KENTUCKY, 1900.

Sec. 788. No railroad corporation, street railway company, steamboat company, or other association, copartnership, person or persons engaged in the transportation of passengers within this Commonwealth shall knowingly transport between persons or places within the territorial limits of this Commonwealth, or transport into such limits for sale, storage, or use therein, any explosive compound in quantities exceeding the amounts hereinafter provided for, in any vehicle containing passengers, or in any vehicle attached to any railroad train or vehicle carrying passengers, or in any case unless the said explosive compounds be plainly and legibly marked with the names of such compounds and the words "explosive"—"dangerous." It shall be the duty of the board of railroad commissioners from time to time to make rules fixing the maximum amounts of various explosive compounds which may be so carried in any public vehicle, or on a railroad train conveying passengers, or in a vehicle attached to such train, or in any car or public vehicle, whether freight or passenger; and said rules subscribed by said railroad commissioners shall be published for the period of four weeks in a daily paper published in Louisville, Lexington, Paducah, and Covington each, and a copy of said rules certified by either member of said board, and a like certificate of the fact of their due publication shall in all cases be legal and conclusive proof of said rules and of the proper publication thereof.

## 40 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

SEC. 789. For violation, a penalty is provided of a fine of not less than fifty dollars nor more than five hundred dollars, or imprisonment in the county jail not less than ten nor more than one hundred days, or both such fine and imprisonment.

SEC. 1374. That it shall be unlawful for any person to sell, loan, or give any dynamite, or caps therefor, within this Commonwealth, without keeping a register of the amount sold, to whom sold, the date of sale and for what purpose to be used. Any person violating any of the provisions of this section shall be fined in the sum of not less than twenty-five nor more than one hundred dollars for each offense. (Kentucky Statutes of 1894, by Barbour & Carroll.)

### LOUISIANA, 1900.

SEC. 949. When gunpowder is shipped on board of a steamboat it shall be stored away at as great a distance as possible from the furnace and a written notification of the fact shall be placed in three conspicuous places on the boat; and in the event of such notification not being so exhibited, then for any loss of property or life, for which the powder may be deemed the cause, the owner and captain shall be liable to the penalty provided in the preceding section.

SEC. 950. Any person who shall ship or put on board, or cause to be shipped or put on board of any steamboat within this State, any gunpowder, without giving notice thereof, at the time of making the shipment, to the master or clerk of said boat, shall be liable to a penalty of two hundred dollars which may be sued for and recovered by the owner, captain, or clerk of said boat, for his own use and benefit; and in case of any loss of property in consequence of gunpowder being on board of said boat, the shipper that shall have failed to give due notice as herein required shall be liable therefor, or for any injury done to any person or to his family; and in the case of loss of life, the person who shall have shipped the same without giving due notice thereof shall, on conviction, be adjudged guilty of manslaughter. (Revised Laws of Louisiana, 1896 (S. Wolff).)

### MAINE, 1901.

In every town the municipal officers may make regulations in conformity to which shall be kept in the town, or transported from place to place, all gunpowder, etc. And no person shall keep any such article in any other quantity or manner than is prescribed, etc. Penalty, a fine of not less than twenty dollars nor more than one hundred dollars for each offense. All such articles may be seized, labelled, and sold, etc. (Revised Statutes of 1884, Sec. 20, Ch. 26, p. 296.)

### MARYLAND, 1900.

There seems to be no provision in the laws of Maryland regulating storage and transportation of explosives.

### MASSACHUSETTS, 1902.

Gunpowder manufactured in this Commonwealth shall be put in strong, tight casks, containing twenty-five, fifty, or one hundred pounds, or not more than five hundred pounds in copper, brass, or tin canisters, and closely covered.

Each cask containing gunpowder manufactured within this Commonwealth or brought into the same by land or by water and landed shall be marked on the head with black paint, in legible characters, with the word "Gunpowder," the name of the manufacturer, the weight of the cask, and the year in which the powder was manufactured, and each canister of gunpowder shall be marked with the word "Gunpowder." (Ch. 57, Revised Laws of Massachusetts, 1902, secs. 32 and 33.)

The city council of a city or town may order that no gunpowder shall be kept within its limits, except when well secured in tight casks or canisters; that not more than fifty pounds of gunpowder shall be kept in any shop, store, or building, or in any ship or vessel which is within twenty-five rods of another building or wharf; not more than twenty-five pounds shall be kept in any store or building if within ten rods of another building, and not more than one pound shall be kept in any store or building within ten rods of another building unless well secured in copper, tin, or brass canisters, holding not more than five pounds each, and closely covered with copper, tin, or brass covers.

The city council may make regulations, etc., as to storage, transportation, and sale of explosives.

Boxes must be labeled "Explosive—dangerous."

## TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES. 41

Whoever stores more than one pound of explosives, or keeps the same for sale, must at once notify the fire commissioner of Boston, and the chief engineer of the fire department, or fire ward, of any other city, of the amount kept, a description of the building, and the part of the building where kept.

Common carriers may decline to receive and transport explosives.

"Explosives" as used herein, includes gun cotton, nitroglycerine, fulminates and compounds thereof, but not gunpowder. (Laws of Massachusetts, 1902, Ch. 102, secs. 87-105).

### MICHIGAN.

SEC. 1. The people of the State of Michigan enact: That no person shall, within this State, manufacture, sell, keep for sale, or offer for sale any high explosive which is not marked, branded, or stamped as in this act provided.

SEC. 2. Every manufacturer of dynamite or other high explosive shall put a brand or mark on each case, distinctly showing the percentage of disruptive force contained in each cartridge in said case, and the name or trade-mark, and the address of such manufacturer.

SEC. 3. No person, by himself, agents, or servants, shall sell, keep for sale, or offer for sale any dynamite or other high explosive not branded or marked as provided in section two of this act.

SEC. 4. Any person who shall falsely brand, mark, or stamp any such explosive, or who shall sell, keep for sale, or offer for sale any high explosives bearing any false brand or mark, shall be deemed guilty of a misdemeanor and be punished as provided in section five of this act.

SEC. 5. Any person violating any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof before a court of competent jurisdiction, shall be punished by a fine of not less than twenty-five dollars nor more than fifty dollars, together with costs of prosecution, or by imprisonment in a common jail of the county where convicted, or in the Detroit House of Correction, not less than sixty nor more than ninety days, or both such fine and imprisonment in the discretion of the court.

SEC. 6. All explosives commonly known as "high explosives" shall be deemed to be within the meaning of this act.

Approved, April 28, 1897.

(Laws of Michigan of 1897, p. 110, No. 101).

### MINNESOTA, 1901.

SEC. 1085 (par. 5). The city council has power to "establish rates for and license vendors of gunpowder and regulate the storage, keeping and conveying of gunpowder or other combustible materials."

SEC. 1088. The power conferred upon the common council to provide for the abatement or removal of nuisances, shall not bar or hinder suits, prosecutions, or proceedings in the courts according to law. Depots, houses or buildings of any kind within the limits of said city wherein more than twenty-five pounds of gunpowder \* \* \* are deposited, stored or kept at any one time \* \* \* are hereby declared and shall be deemed public or common nuisances."

SEC. 1224 (par. 10). The village council has power to "regulate the storage of gunpowder and other dangerous materials."

SEC. 1299 (par. 5). The village council has power "to regulate the keeping, storage, and conveyance of gunpowder, dynamite or other explosive or combustible material, and to regulate the use thereof in the village."

SEC. 6457. A person who makes or keeps gunpowder or any other explosive substance, within a city or village, in any quantity or manner prohibited by law or by ordinance of the city or village, if any explosion thereof occurs whereby the death of a human being is occasioned, is guilty of manslaughter in the second degree.

SEC. 6617. A person who makes or keeps gunpowder, nitroglycerine, or any other explosive or combustible material, within a city or village, or carries such materials through the streets thereof, in a quantity or manner prohibited by law, or by ordinance of the city or village, is guilty of a misdemeanor. And a person who, by the careless, negligent, or unauthorized use or management of gunpowder or other explosive substance, injures or occasions the injury of the person or property of another, is punishable by imprisonment in the county jail for not more than one year. (Statutes of Minnesota, 1894.)

### MISSISSIPPI, 1900.

There appear to be no provisions in the laws of Mississippi covering the question of transportation and storage of explosives.



## 42 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

### MISSOURI.

Sec. 5281 (Par. XII). Cities, towns, and villages have power "to regulate the storage of gunpowder, giant powder, dynamite, nitroglycerine, and other explosive compounds, and of all combustible and inflammable materials," etc. (See also sec. 5508.)

Sec. 7457. No person, corporation, or joint stock company shall, on and after ten days after this article shall take effect, have, retain, or keep in his possession or under his or its control, nor sell, give away, or in any manner or way dispose of dynamite, giant powder, nitroglycerine or any explosive substance, of which nitroglycerine composes a part, or any other explosive substance, except gunpowder and blasting powder for ordinary purposes, without first obtaining a permit authorizing the same from the clerk of the county court, or mayor of the city of St. Louis, in whichever county or city such applicant may desire to do such business, nor without first making and delivering the affidavit required by the next succeeding section of this article. (Laws of 1893.)

Sec. 7458. Any person, corporation, or joint stock company desiring to continue in or engage in the dealing or sale of any of the articles mentioned in the foregoing section, shall make the following affidavit before some officer authorized to administer oaths, to wit:

"(A B), desiring to deal in (here name the articles or part of them described in the foregoing section), do solemnly swear that I will not use the same unlawfully, nor use it or any part thereof in catching or killing fish, nor permit anyone in my employ so to do, if in my power to prevent it; that I will not sell, give away, or in any way dispose of any of said articles, or part thereof, to any person until he or they shall deliver to me the affidavit required to be made by purchasers as provided for by this article; which affidavit of such purchaser I will file with the clerk of the county court of ——— county (or with the mayor of the city of St. Louis), as required by this article." (Laws 1893, p. 173.)

Sec. 7459. Any person desiring a permit to deal in any of the explosive articles described in this article may present to and file with the clerk of the county court of the county in which he desires to do such business, or if he desires to do such business in the city of St. Louis, then to the mayor thereof, an affidavit as required by the foregoing section, whereupon such clerk, or mayor, shall issue a permit to such person, or to his agent for him, in the words or to the effect following:

"State of ———, county of ——— (or city of St. Louis), A. B. of ———, Missouri, is hereby permitted to deal in explosives at ——— county, Missouri. Witness my hand and seal, etc., date, etc."

Such mayor or clerk shall keep a book in which shall be recorded a memorandum of all permits granted under this article, and of all affidavits filed with them under the provisions thereof, and shall also carefully preserve all such affidavits, free to the inspection of all citizens of this State: *Provided*, Such affidavit required of corporations or joint stock companies may be made and filed by any agent or officer thereof. (Laws 1893, p. 173.)

Sec. 7460. Any person, corporation or joint stock company desiring to procure for their own use any of the explosives described in this act, shall make an affidavit and deliver it to any one authorized under this article to deal in such articles, which affidavit shall be in the following form or to the effect following, to wit:

"I, ———, desiring to procure from ——— the following explosives, ———, to be used for lawful purposes, do solemnly swear that I will not use them, or any part thereof, for unlawful purposes, nor in catching or killing fish in any of the waters of this State, nor permit them to be so used by others, if in my power to prevent it; that I will not sell or give away any of said articles, or permit any of said explosives to go from under my control to any other person."

*Provided*, That such affidavit may be made by any agent of any corporation or joint stock company, or officer thereof, in order to procure for its lawful use any of such articles; and such dealer selling or disposing of such articles shall, within five days, file such affidavit so delivered to him with the county clerk, or the mayor of St. Louis, if the purchase is made in that city. (Laws 1893, p. 173.)

Sec. 7461. Any person, corporation, or joint stock company not having obtained a permit, as required by this article, and all persons, corporations, or joint stock companies not having made and delivered the affidavit required by this article, who shall have in their possession or under their control any of the explosive articles named in this article on or after ten days after this article shall take effect, or who shall fail to file the affidavit required of purchasers of them within five days, as required by this article, shall be deemed guilty of a misdemeanor, and, on conviction, punished by a fine of not less than fifty dollars. (Laws 1893, p. 173.)

TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES. 43

SEC. 7462. It shall be the duty of the county clerks and of the mayor of the city of St. Louis to deliver to all persons permits who shall comply with the provisions of this article, and for the preparation of and attestation to affidavits and executing permits may charge and receive twenty-five cents each from the person to whom issued. (Laws 1893, p. 173.)

SEC. 7464. Any person who shall violate any of the provisions of this article, or fail to truthfully observe the provisions and requirements of any affidavit made by him under the provisions of this article, shall, on conviction, be adjudged guilty of a felony, and punished by imprisonment in the penitentiary for a term not exceeding two years, or by imprisonment in the county jail not less than thirty days, or by fine not less than one hundred dollars, or by both such fine and imprisonment. (Laws, 1893, p. 173.)

SEC. 7465. Provides that one-half of the fines collected upon conviction shall be paid to the informer and the other half to the county-school fund.

MISSOURI (proposed bill).

It shall be unlawful for any person, firm, corporation, or association to manufacture dynamite, nitroglycerine, blasting powder, gunpowder, or any other explosive compound, within one hundred and sixty rods of any occupied dwelling or public building.

It shall be unlawful for any person, firm, corporation, or association to store, keep, or have on hand any of said dynamite, nitroglycerine, blasting powder, gunpowder, or any other explosive compound, in any quantity exceeding one hundred pounds within the limits of any municipal corporation or within forty rods of any occupied dwelling or public building without first having obtained in writing the consent of the occupants of all dwellings within forty rods of said magazine or storage room.

Any person violating the provisions of this section shall be fined the sum of not less than one hundred dollars nor more than five hundred dollars, or imprisoned in the county jail not less than three months nor more than one year, or both such fine and imprisonment at the discretion of the court trying the cause; and each succeeding day on which such violation shall be continued shall constitute a separate and distinct offense, and be subject to a like fine and imprisonment, which said fine and imprisonment shall be cumulative, and one action may be maintained to recover one or more such fines or enforce one or more of such penalties or imprisonment before any court of competent jurisdiction.

MONTANA, 1901.

SEC. 707. That every person, company or corporation, manufacturing, storing, selling, transferring, dealing in, or in any manner disposing of any powder, gunpowder, giant or Hercules powder, giant caps, or other highly explosive substances, shall keep in a book for that purpose an accurate record of all transactions, with the date thereof, relating to the receiving or disposing of the same, which record shall show the amount of each such explosive received, of whom received, by whom transported or conveyed and each and every sale or other disposition made of such explosive, with the amount thereof and the name of the person to whom delivery of the same was made, who shall be required to receipt therefor. Such record shall, at all times, be open to the inspection of the State inspector of mines, or any peace officer. (Act approved Mar. 15, 1895.)

SEC. 708. No person, company, or corporation, shall store, deposit, or keep in any mine, a greater quantity than three thousand pounds of blasting powder, giant or Hercules powder, or other highly explosive substance; and no explosives named in this section shall be stored, deposited, or kept in any place where its accidental explosion would cut off the escape of miners working in said mine.

SEC. 709. No person, company, or corporation shall store, deposit, or keep within one mile of the limits of any city, town or village, any powder, gunpowder, giant or Hercules powder or other highly explosive substance, in greater quantities than one hundred pounds, or more than one thousand giant caps, at any one time, nor shall such explosives be stored, deposited or kept in any quantities whatever, within one mile of such city, town or village, except in a magazine constructed as hereinafter described: *Provided*, That this section shall not be construed to prevent any person, company or corporation, operating a mine within one mile of the limits of such city, town or village, from storing powder for use in such mine in the manner prescribed in sections 708 and 710 of this act: *Provided also*, That this section shall not prevent the keeping of a reasonable amount of gunpowder, not exceeding fifty pounds, in a safe place for sale.

#### 44 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

Sec. 710. It shall be unlawful to store, deposit or keep any powder, gunpowder, giant or Hercules powder, giant caps or other highly explosive substance, in amounts exceeding one hundred pounds, elsewhere than in store houses or magazines constructed as follows:

The walls of such storehouses and magazines shall be constructed entirely of stone or brick. There shall be no openings in such magazine except necessary ventilation, and one entrance not exceeding thirty inches in width. There shall be two doors to such entrance; an outer door opening outward and an inner door opening inward. The said door shall be of plank, not less than two inches in thickness, and both doors shall be entirely covered with one-eighth inch iron, and shall be hinged upon two or more iron hooks, securely anchored in the walls of such magazine. Both said doors shall be kept securely locked at all times when powder is stored therein, except when it is necessary to store therein or remove therefrom, such powder or other explosives. Such storage room or magazine shall be well and securely roofed with fire-proof and bullet-proof material. Such magazine shall not be constructed within less than one-quarter of a mile of any human habitation, except by the permission of the county commissioners, nor shall any magazine constructed within one mile of the limits of any city, town or village, be constructed within one hundred feet of any building owned by any other person.

Sec. 711. Every storehouse or magazine constructed as provided in the foregoing section, in which shall be stored, deposited or kept, any powder, gunpowder, giant or Hercules powder, giant caps, or other highly explosive substance, shall, at all times, have posted above the entrance thereof, a signboard on which shall be painted, in conspicuous letters, not less than four inches in length, the words "Explosives—Dangerous."

Every dray, wagon, freight car, or other vehicle in which shall be transported, transferred, or delivered any of the said explosives, shall bear on each side thereof a similar sign with conspicuous letters not less than two inches in length.

Sec. 712 (as amended see session laws of 1897, p. 246, approved Mar. 6, 1897). It shall be unlawful to knowingly transport or deliver, or cause to be delivered, giant or Hercules powder, giant caps, nitroglycerin, nitrooleum, blasting or nitrated oil, or powder mixed therewith, or fiber saturated therewith, or any other highly explosive substance in any quantities whatever, on any vessel or vehicle whatever carrying passengers by land or water, between any points within the State of Montana: *Provided*, That on mixed trains intended for service on railroad lines leading to mining localities or camps the aforesaid explosive substances, or any of them, may be lawfully carried by hanging a placard on each side of the car or cars carrying the explosives, reading thus: "This car is loaded with powder," each letter of said placard to be at least two inches long; but this proviso shall not permit the carrying of any of said explosive substances in the same car or coach in which the passengers are carried.

Sec. 713. By this section the reckless handling of explosives and the intimidation of others thereby is made a misdemeanor.

Sec. 714. Any person or association of persons violating any of the provisions of this act shall be punished by imprisonment in the penitentiary not exceeding five years or by fine not exceeding five thousand dollars, or by both such fine and imprisonment.

Sec. 715. When death of any person is caused by the explosion of any powder, gunpowder, giant or Hercules powder, giant caps, or other highly explosive substance that has been stored, kept, handled, or transferred contrary to the provisions of the foregoing section, the person or persons who have so unlawfully stored, kept, handled, or transferred such explosives, or who may have, knowingly or negligently, permitted their agents, servants, or employees to so unlawfully store, keep, handle, or transport the same, shall be guilty of manslaughter and, on conviction, shall be punished by imprisonment in the State penitentiary for a period not exceeding ten years.

Sec. 716. No person or persons shall store or keep in any store, warehouse, or any other building within the limits of any unincorporated town or village, more than five thousand giant caps at any one time, or any coal oil, kerosene, or petroleum exceeding sixty gallons, other than in original packages within the limits of said unincorporated town or village, or shall sell, land, barter, or dispose of, deliver, or receive the same, or any or either of the said articles or materials, in the section herein enumerated, after dark, by the aid of any lamp, lantern, candle, match, or other artificial light except electric light. (Montana Codes, 1895, vol. 4.)

## NEBRASKA.

Metropolitan cities (having population of 80,000 or more), have power—  
(783) SEC. 48. To regulate or prohibit the transportation and keeping of gunpowder, oils, and other combustible and explosive articles (p. 141).

Cities of second class and villages have power—

(1341) XVIII. To regulate and prevent storage of gunpowder, nitroglycerin, or any of the productions thereof, and other material (p. 278).

(2277) SEC. 5. The board of county commissioners of each organized county shall have the power to abate or remove any depot of nitroglycerin, explosive oils, gunpowder, or other dangerous explosive or inflammable material which is so deposited or situated that if ignited it would, in their opinion, injure the life or buildings or property of any person, and to cause, by the order of said board, that the owner or owners of such material remove the same, and in case the owner or owners of such material, or the person or persons having charge of the same, do not remove the same to some place designated or agreed to by said board, within ten days after personal service of such notice to remove the same, each and every person so offending shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in a sum not exceeding one hundred dollars nor less than twenty-five dollars. (P. 452, Compiled Statutes of Nebraska, 1897.)

SEC. 2327 (235). It shall be unlawful to transport or carry the substance or material generally known and called nitroglycerin, into, out of, within, through, or across this State, except as herein provided. Every wagon, cart, or other vehicle used in carrying nitroglycerin shall have printed upon both sides and ends thereof, in plain and distinct letters large enough to occupy a space of two inches wide by eighteen inches long, the words "Nitroglycerin"—"Dangerous"; and every package, can, cask, barrel, or box containing nitroglycerin shall have written or printed thereon upon two sides thereof, in plain and distinct letters, the words "Nitroglycerin"—"Dangerous."

SEC. 2328 (236). Provides that these substances may not be carried with passengers.

SEC. 2329 (237). It shall be unlawful for any person or persons to manufacture nitroglycerin within this State within a distance of one hundred and sixty rods of any occupied dwelling or public building, or to store the same in any quantity exceeding one hundred pounds within the limits of any city or incorporated village, or in any other place within one hundred and sixty rods of any occupied dwelling or public building.

SEC. 2330 (238). For violation, a penalty is provided of a fine not exceeding one thousand dollars or imprisonment in the county jail for not more than three months, or both. (Annotated Code of Nebraska, 1901 (Cobbey).)

## COMPILED LAWS OF NEVADA, YEARS 1861 TO 1900.

Dynamite machine unlawful. 4974, section 1:

It shall be unlawful for any person or persons to manufacture or procure any dynamite machine or device or other device for the destruction of life or property, or to have either of the same in his or their possession any such dynamite machine, device, or other device, with intent to use the same, or to use or attempt to use the same for the destruction of life or property, or shall by the use of either destroy life or property.

Penalty. 4975, section 2:

Any violation of section one shall be a felony, and on due conviction thereof, except for the taking of life, shall be a felony and be punished by imprisonment in the state prison for a period of not less than ten years, nor more than twenty-five years, and in case of taking life, the offense shall be murder in the first degree, and the penalty shall be death, as now provided by law.

## NEW HAMPSHIRE.

Cities have power to regulate the keeping, conveying, and places of deposit of gunpowder and other combustibles, etc.

Page 193, Revised Statutes of 1901.

The board of fire wards or selectmen of a town may establish rules and regulations relative to the times and places at which gunpowder may be brought to or carried from said town, by land or water, and the time and manner in which it may be transported through the town.

## 46 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

May search any building in the compact part of town, or vessel lying at port, in which they have reason to suspect that more than twenty-five pounds are stored, and if more than that quantity is found, shall seize the same as forfeited.

Penalty for anyone keeping more than twenty-five pounds, or failing to inform if having knowledge thereof, five dollars per day.

Powder for retail shall be kept in tin or other metal canister; penalty for failure to comply, five dollars per day.

Powder shall not be transported through compact part of town in more than one hundred pound lots, nor unless casks are enveloped in close leathern bags or in closely covered carriage. Penalty for failure to comply, fifty dollars.

No carriage containing more than twenty-five pounds shall stand in any building or near any store, etc., in the compact part of town. Penalty, fifty dollars.

There is a provision against peddling powder; also against sale of the same between sunset and sunrise.

The master of any merchant vessel bringing more than twenty-five pounds into port, shall deposit in public magazine, if any is provided, all such powder within forty-eight hours. Penalty for failure to comply, one hundred and fifty dollars.

"No person shall transport, or have in his possession for the purpose of transporting, in any public conveyance, nor shall any person leave, deposit or have in his possession, in any dwelling house, shop or manufactory, dynamite, giant powder, nitroglycerin or any explosive compound of which nitroglycerin forms a part." Penalty, a fine of not more than five hundred dollars. (Revised Laws New Hampshire of 1901, sec. 11, ch. 117, p. 366.)

### NEW JERSEY.

The laws of 1886, page 358, provide as follows:

"That no person or persons or corporation shall, after the passage of this act, be permitted within this State to erect, have or maintain or cause to be erected, had or maintained any establishment, storehouse or building in which shall be manufactured, stored, or kept any gunpowder, blasting powder, dualin, dynamite, Forcite, giant powder, nitroglycerin or any powder or materials of which nitroglycerin is an essential ingredient or forms a component part, or any other explosive within the distance of one thousand feet from any public road, and every person or corporation offending against the provision of this act shall be guilty of a misdemeanor and on conviction thereof shall be liable to a fine not exceeding two thousand dollars, provided, however, that nothing in this act shall be construed as to prevent any person or persons from storing in fireproof magazines any quantity of gunpowder or blasting powder not exceeding in quantity two thousand pounds, within the said distance of one thousand feet of a public road, and provided further that the prohibition in this act contained shall not apply to any establishment, storehouse, or building heretofore erected and used for the manufacturing, storing, or keeping of any of the said explosive substances."

The laws March 21, 1874, page 59, contain the following provision:

"That no person or persons or company shall be permitted within this State to erect, have, or maintain, or cause to be erected, had or maintained, any establishment, building or manufactory which shall be actually employed in manufacturing or storing nitroglycerin or any powder or material of which nitroglycerin is an essential ingredient, or forms a component part, within the distance of a quarter of a mile from any town, city, village, or house of public worship; or within the distance of a quarter of a mile from any inhabited house without the consent in writing of the occupant or occupants of such inhabited house as aforesaid. A violation of the above is a misdemeanor punishable by a fine not exceeding two thousand dollars."

By a subsequent act, the above provisions are extended so as to include nitronaphthaline, blasting powder, or any material of which nitronaphthaline is an essential ingredient or forms a component part.

Act of 1811 provides:

"That no factory actually employed in manufacturing gunpowder shall be allowed within the distance of a quarter of a mile from any town or village or house of public worship, or within the distance of a quarter of a mile from any dwelling house, barn, or outhouse without the consent, under hand and seal, of all and every owner or owners of such dwelling house, barn, or outhouse: *Provided*, That nothing in this section shall be construed so as to prevent the completing, rebuilding, or repairing any powder mill now erected or erecting in this State on which the same shall be now erected or erecting.

## TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES. 47

"2. That no person or persons shall be permitted to erect, or cause to be erected, any powder magazine within this State, and actually deposit gunpowder therein, within the distance of half a mile from any town or village, house of public worship, dwelling house, or outhouse."

The above was subsequently modified so as to permit the storage of one hundred kegs of gunpowder of twenty-five pounds each in a fireproof magazine.

NEW MEXICO, 1901.

There appear to be no provision, in the laws of New Mexico covering the question of transportation and storage of explosives.

NEW YORK, 1899.

SEC. 201. A person who makes or keeps gunpowder or any other explosive substance, within a city or village, in any quantity or manner prohibited by law, or by ordinance of the city or village, if any explosion thereof occurs, whereby the death of a human being is occasioned, is guilty of manslaughter in the second degree.

SEC. 389. A person who makes or keeps gunpowder, nitroglycerin, or any other explosive or combustible material, within a city or village, or carries such materials through the streets thereof, in a quantity or manner prohibited by law, or by ordinance of the city or village, is guilty of a misdemeanor. And a person who, by the careless, negligent, or unauthorized use or management of gunpowder, or other explosive substance, injures, or occasions the injury of the person or property of another, is punishable by imprisonment for not more than two years. Any person or persons who shall knowingly present, attempt to present, or cause to be presented or offered for shipment to any railroad, steamboat, steamship, express, or other company engaged as common carrier of passengers or freight, dynamite, nitroglycerin, powder, or other explosives, dangerous to life or limb, without revealing the true nature of said explosives or substance so offered, or attempted to be offered to the company or carrier to which it shall be presented, shall be guilty of a felony, and, upon conviction, shall be fined in any sum not exceeding one thousand dollars, and not less than three hundred dollars, or imprisonment in a State prison for not less than one nor more than five years, or be subject to both such fine and imprisonment. (Silver-pail's Penal Code of New York, annotated, 1899.)

NORTH CAROLINA, 1901.

It shall be unlawful for any dealer or other person to sell or keep for sale any dynamite cartridges, bombs, or other combustibles of a like kind, without first having obtained from the board of commissioners of the county where such person or dealer resides, a license for that purpose, for which he shall pay to the register of deeds for issuing the same, a fee of twenty-five cents.

Dealer is required to keep a record of the party to whom sale is made, and for what purpose desired to be used. (Ch. 364, Laws of North Carolina, 1887.)

NORTH DAKOTA, 1901.

Every person who makes or keeps gunpowder, saltpeter, gun cotton, nitroglycerin, or dynamite, or any compound of the same, or any fulminate or substance which is intended to be used by exploding or igniting the same in order to produce a force to propel missiles, or to rend apart substances, within any city, town or village, and any person who carries any of such explosives through the streets thereof, in any quantity or manner prohibited by law or by any ordinance, by-law or regulation of said city, town, or village, is guilty of a misdemeanor. (Sec. 7290, Revised Laws of North Dakota, 1895.)

OKLAHOMA, 1901.

SEC. 2096. Every person guilty of making or keeping gunpowder or saltpeter within any city or village in any quantity or manner such as is prohibited by law or by any ordinance of said city or village, in consequence whereof any explosion occurs whereby any human being is killed, is guilty of manslaughter in the second degree.

SEC. 2252. Every person who makes or keeps gunpowder or saltpeter within any city or village, and every person who carries gunpowder through the streets thereof, in any quantity or manner such as is prohibited by law or by any ordinance of such city or village, is guilty of a misdemeanor. (Statutes of Oklahoma of 1893.)

## 48 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

### OHIO.

Sec. 1. That section 6953, passed May 1, 1871, be so amended to read as follows:

Sec. 6953. It shall be unlawful for any person, firm, or corporation to manufacture the substance or material known as nitro-glycerine, or any compound thereof, or to store the same in quantities exceeding one hundred pounds, within the limits of any municipal corporation, or within eighty rods of any occupied dwelling or public building, or without giving bond as hereinafter provided to pay any damage caused by the explosion of said substance.

Within thirty days after the passage of this act any and all persons, firms, or corporations heretofore engaged in the manufacture or storage of said substance in any county in this State, and all persons, firms, or corporations hereafter engaging in such manufacture or storage, shall give bond in the sum of five thousand dollars, with good and sufficient surety, to the county commissioners such of county, with such surety or sureties as shall be approved by such county commissioners, conditioned for the payment of all damages that may be caused to persons or property by any explosion of any of said substance, by reason of any negligence of any person, firm, or corporation, their servants or agents, so manufacturing or storing said substance.

### RHODE ISLAND, 1901.

Sec. 47. Every person who shall knowingly deliver or cause to be delivered to any person or carrier any box, can, or other package of nitro-glycerine, gunpowder naphtha, or other equally explosive material, not marked with a plain and legible label describing its contents, or who shall remove, or cause to be removed, any such label or mark, shall be fined not more than ten thousand dollars or imprisoned not more than five years. (General Laws of Rhode Island of 1896, p. 990.)

Sec. 1. Town councils and city councils may, from time to time, make and ordain all ordinances and regulations for their respective towns, not repugnant to law, which they may deem necessary for the safety of their inhabitants from the manufacture, storage, keeping, having in possession, transportation, sale, or use of gunpowder, gun cotton, dynamite, nitro-glycerine, nitro-gelatine, lyddite, chlorate of potash, picric acid, sodium, calcium, carbide, acetylene gas, gasoline gas, and any and all other explosives and explosive chemicals; and may prohibit the manufacture, storage, keeping, having in possession, transportation, sale, or use of any and all by any and all person or persons of any or all said substances and gases in their respective towns, unless a license for the same shall be first obtained from the town council or board of aldermen, which license shall be for the term of one year from the date thereof, unless sooner revoked by order of said town council or board of aldermen. Any person violating any provision of any such ordinance or regulation or any such prohibition shall be fined not less than twenty dollars nor more than one hundred dollars for each such offense. (Session laws of Rhode Island, Jan., 1902, p. 67.)

### SOUTH CAROLINA.

Sec. 2150. No railroad corporation or other association, copartnership, person, or persons engaged in the transportation of passengers within this State shall knowingly transport within the territorial limits of this State or transport into such limits for sale, storage, or use therein any explosive compound in quantities exceeding the amounts hereinafter provided for, in any vehicle conveying passengers, nor in any case unless said explosive compounds be plainly and legibly marked with the names of such compounds and the words "Explosive—dangerous." It shall be the duty of the railroad commissioners, from time to time, to make rules fixing the maximum amounts of various explosive compounds which may be so carried in any public vehicle or in a railroad train containing passengers, or in a vehicle attached to such train. The said rules shall also define the method of packing such compounds to insure the greatest safety, and shall prescribe how the same shall be carried as freight on railroads, steamboats, and by common carriers.

Sec. 2151. No person shall deliver for transportation to any railroad corporation, street-railway company, or other association, copartnership, persons, or person engaged in the transportation of passengers within this State, or take or place upon or in any car, boat, or other vehicle of any such corporation, company, association, copartnership, or person, with intent that the same shall be carried or transported in such car, boat, or other vehicle any explosive compound mentioned in this chapter, unless the same is packed and marked as herein provided and notice of the dan-

gerous nature thereof is expressly given to the agent, servant, or person to whom it is delivered, or to the agent, servant, or person having at the time the management and control of the car, boat, or other vehicle in or upon which the same is to be carried or transported. And any common carrier may decline to receive to transport any such explosive compound in any manner whatever.

SEC. 2152. Penalty is provided for of not less than fifty nor more than five thousand dollars' fine, or imprisonment in State prison not exceeding five years.

SEC. 2153. Upon complaint being made under oath to a magistrate, search warrant may be issued for the purpose of discovering whether this law is being violated, etc.

SEC. 2154. Explosives kept in violation of this chapter may be seized and adjudged forfeited.

SEC. 2155. Persons injured by explosives kept or transported contrary to the provisions herein may recover of guilty parties.

SEC. 2156. By the words "explosive compound" as used in this chapter shall be understood gun cotton, nitro-glycerine, or any other compound of the same, any fulminate or generally any substance intended to be used by exploding or igniting the same to produce a force to propel missiles or to rend apart substances, except gunpowder. (Code of Laws of South Carolina of 1902.)

## SOUTH DAKOTA.

SEC. 6460. Every person guilty of making or keeping gunpowder or saltpeter within any city or village in any quantity or manner such as is prohibited by law or by any ordinance of said city or village, in consequence whereof any explosion occurs whereby any human being is killed, is guilty of manslaughter in the second degree.

SEC. 6635. Every person who makes or keeps gunpowder or saltpeter within any city or village, and every person who carries gunpowder through streets thereof in any quantity or manner such as is prohibited by law or by any ordinance of such city or village, is guilty of a misdemeanor. (Compiled Laws of Dakota, 1887.)

The session laws since that date are not in the library.

## TENNESSEE.

SEC. 3009 (1694) (2269). No person shall, within the limits of any incorporated city or town, keep on hand at any one time, either for sale or for his own use, more than fifty pounds of gunpowder, gun cotton, or any other explosive material.

Section 3010 provides that in case of violation the penalty is a fine of not less than \$100, and the guilty parties are liable to respond in damages to any person injured.

SEC. 3011. The corporate authorities of every city and incorporated town in this State may designate some suitable place at such distance from the limits of the corporation as may be deemed safe to build magazines for the storage and safe-keeping of gunpowder or other explosive materials, which order shall be entered in the corporation records.

SEC. 3012. They may also prescribe the rules, regulations, and restrictions under which explosive materials shall be kept stored, and the mode in which the magazines or storehouses shall be constructed, so as, in their opinion, best to secure the community from danger.

It is a public nuisance:

SEC. 6869 (par. 5). To carry on the business of manufacturing gunpowder, or of mixing or grinding the materials therefor, in any building within 80 rods of any valuable building erected at the time such business may be commenced.

Paragraph 6. To establish powder magazines near incorporated towns at a point different from that appointed according to law by the corporate authorities of the town. (Code of Tennessee of 1898 (by R. T. Shannon).)

Nuisance per se—when:

A powder house located in a populous part of a city, and containing stored therein large quantities of gunpowder, is per se a nuisance. So held before this statute. (1 Swan, 214.)

## TEXAS, 1901.

The city council has power—

ART. 529. To direct, control, or prohibit the keeping and management of any houses or any buildings for the storing of gunpowder and other combustible, explosive, or dangerous materials within the city; to regulate the keeping and conveying of the same. (Sayles's Texas Civil Statutes, 1897.)



## 50 TRANSPORTATION OF GUNPOWDER AND OTHER EXPLOSIVES.

### REVISED STATUTES, UTAH, 1898.

#### SEC. 4280. Keeping explosives in city, etc.:

Every person who makes or keeps gunpowder, nitroglycerin, or other highly explosive substance within any city, town, or village, or who carries the same through the streets thereof, in any quantity or manner such as is prohibited by law or by any ordinance of such city or town, is guilty of a misdemeanor.

### VERMONT, 1900.

"Any person who keeps, or suffers to be kept, upon premises owned or occupied by him, within fifty rods of an inhabited building of another person, more than fifty pounds of gunpowder or nitroglycerine at one time, or more than one pound, unless contained in sound canisters of tin, or other metal, or a package containing more than fifty pounds of dynamite, shall forfeit twenty-five dollars to the town, and shall also forfeit twenty-five dollars for each day that it is so kept after notice from an inhabitant of such town to remove the same, to be recovered in an action on the case in the name of the town." (Revised Laws of Vermont, 1894, sec. 5149.)

### VIRGINIA, 1901-2.

There appear to be no provisions in the laws of Virginia covering the question of transportation and storage of explosives.

### CODES AND STATUTES, WASHINGTON, 1897.

#### SEC. 3085. Public nuisances enumerated. It is a public nuisance—

\* \* \* \* \*

5. To carry on the business of manufacturing gunpowder, nitroglycerin, or other highly explosive substance, or mixing or grinding the materials therefor, in any building within fifty rods of any valuable building, erected at the time such business may be commenced.

6. To establish powder magazines near incorporated cities and towns at a point different from that appointed by the corporate authorities of such city or town; or within fifty rods of any occupied dwelling house.

### WEST VIRGINIA, 1901.

There appear to be no provisions in the laws of West Virginia covering the question of transportation and storage of explosives.

### WISCONSIN STATUTES, 1898.

#### SEC. 1805. Explosives not to be carried.

No railroad corporation shall transport or carry any gunpowder, dynamite, nitroglycerin, or like explosive articles in any baggage, mail, express, or passenger car; and for every violation thereof, by any officer or agent of such corporation, shall forfeit not less than two hundred nor more than one thousand dollars.

#### SEC. 4393. Locking cars; dangerous articles.

Any officer, agent, conductor, or other employee or any railroad company operating within this State, who shall willfully run or cause to be run, any railroad train or engine faster than at the rate of six miles per hour, while passing over the traveled streets of any city or village, or until all such streets have been passed by such train or engine, or who shall lock or cause to be locked the doors of any passenger car occupied by any passenger at any time, or who shall use or authorize the use of any kerosene oil or other dangerous explosive burning fluid in lighting any passenger car, or who shall knowingly carry or cause or permit to be carried or transported on any baggage, mail, express or passenger car any powder, dynamite or other dangerously explosive substance, and any person who shall, secretly or surreptitiously, or by concealment or misrepresentation, ship or cause to be shipped upon any railroad train or car any powder, dynamite or other dangerously explosive substance without the knowledge of the proper officer, agent, conductor or employee in charge of such train, shall be punished by imprisonment in the county jail not more than six months, or by fine not exceeding one thousand dollars.

#### SEC. 4398a. Sale, transportation, etc., of explosives for unlawful purposes.

Any person who shall make, manufacture, compound, buy, sell, give away, offer for sale or to give away, transport, or have in possession any nitroglycerin; giant,

oriental, or thunderbolt powder; dynamite, ballistile, fulgarite, detonite, or any other explosive compound, with intent that the same shall be used in this State or anywhere else for the injury or destruction of public or private property, or the assassination, murder, injury, or destruction of any person or persons, either within this State or elsewhere, or knowing that such explosive compounds are intended to be used by any person or persons for any such purpose, shall be punished by imprisonment in the State prison not more than ten years nor less than three years, or by fine not exceeding one thousand dollars nor less than five hundred dollars.

WYOMING, 1901.

SEC. 1950. It shall be unlawful for any person or company to store any gunpowder or any other explosive material at a less distance than one thousand feet from any house or habitation, when more than fifty pounds are stored at the same place, except with the sanction of the board of county commissioners of the county in which said storage place may be located; but it shall be unlawful to place or to keep more than five pounds of such powder, or other explosive material, in any house or building occupied as a residence, or in any outbuilding pertaining thereto.

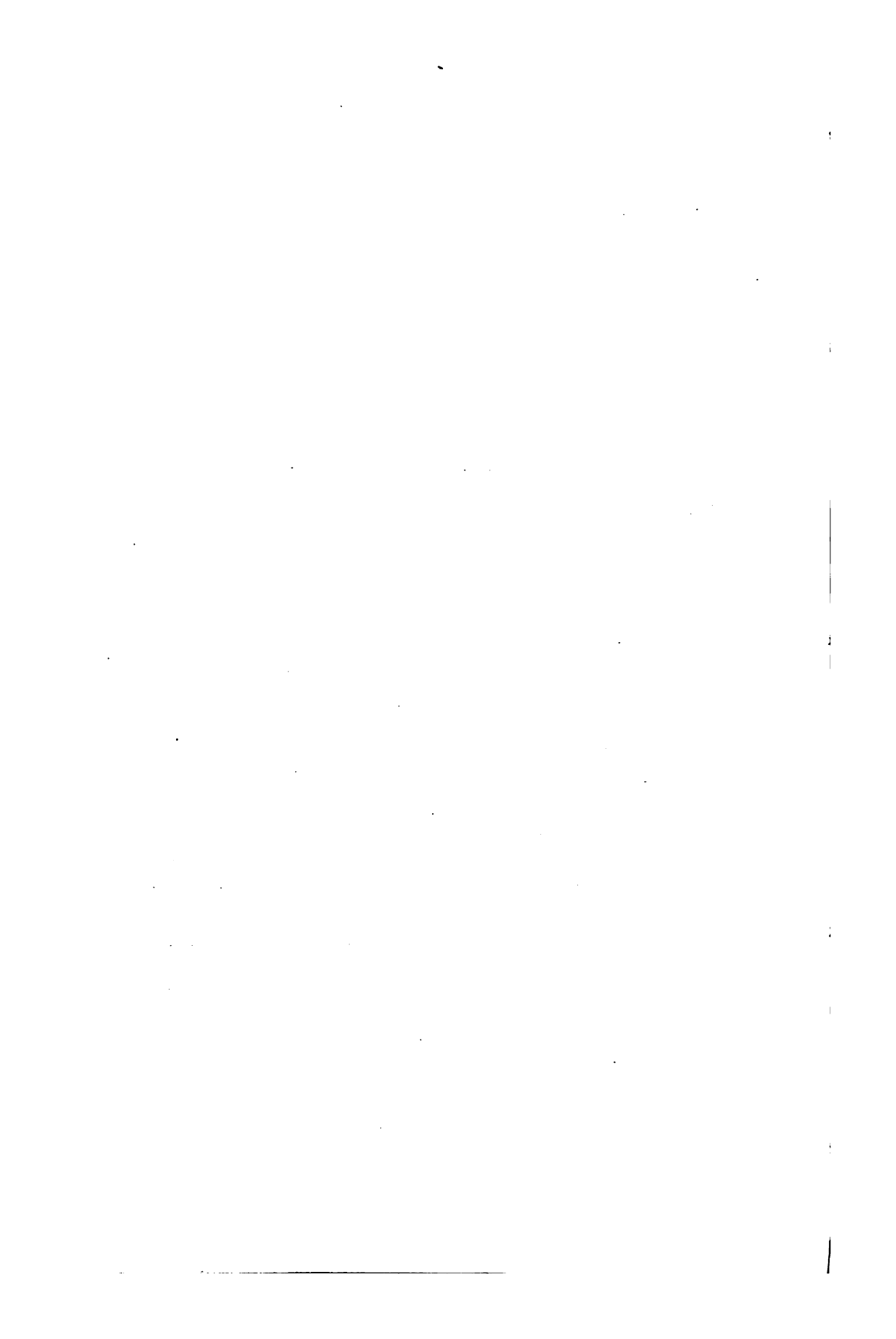
SEC. 1951. Hereafter any powder magazine that may be built shall be so constructed as to provide and maintain the storage room thereof entirely below the natural surface of the ground adjacent, and it shall be unlawful to store such powder or explosives in any other than such storage room.

SEC. 1952. Anyone violating the provisions of section 1950 shall be, on conviction, fined in a sum not exceeding one hundred dollars for each and every offense, and may be imprisoned not exceeding thirty days, or both fine and imprisonment, in the discretion of the court having jurisdiction. Any violation of the provisions of the preceding section shall be a public nuisance, and shall be abated at the suit of any person in any court of competent jurisdiction. (Revised Statutes of Wyoming, 1887.)

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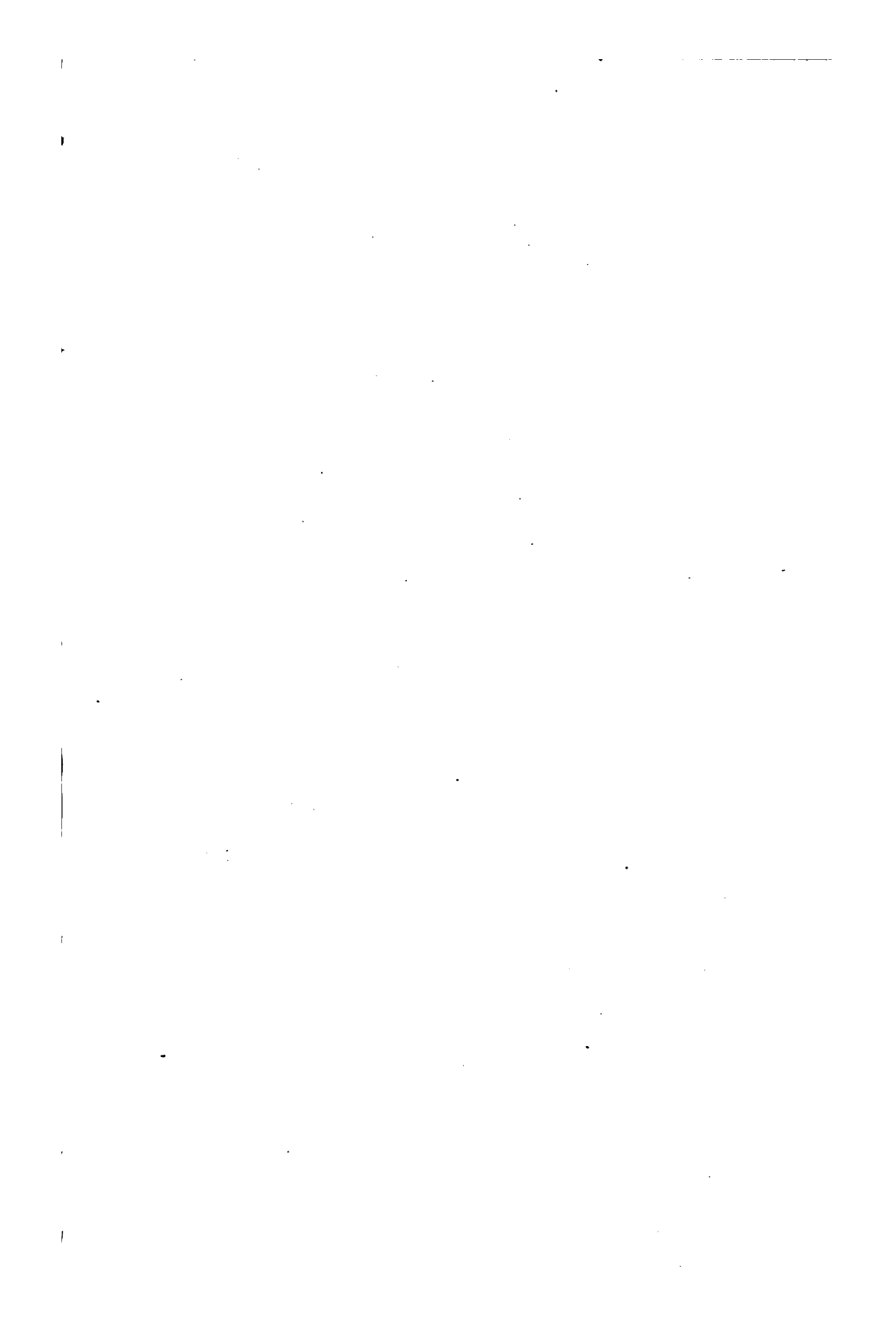














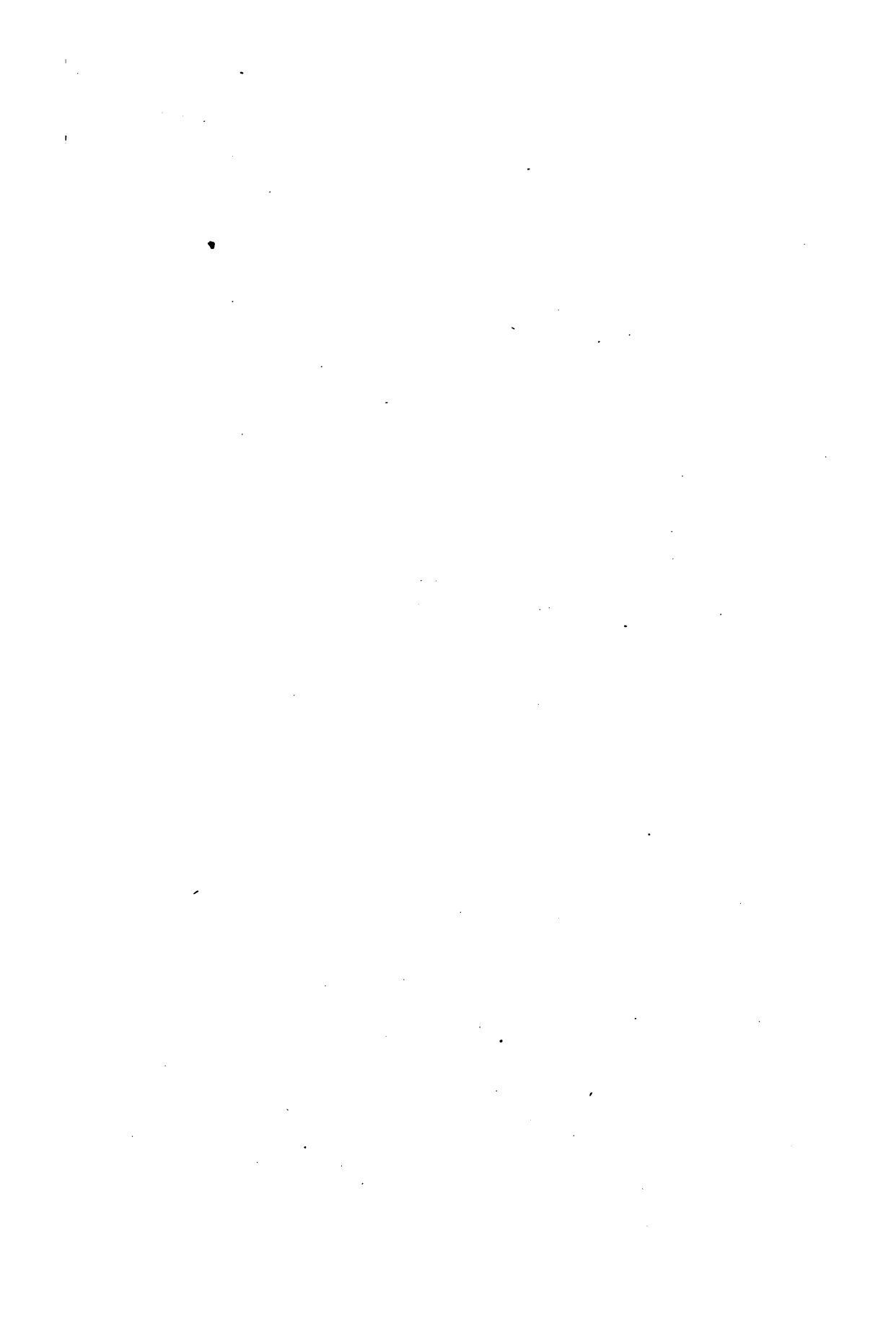
















































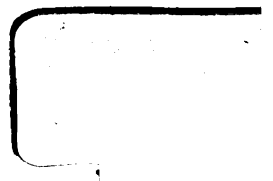














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